COMPUTER WEEKLY

Big pull-out follows Iran revolution

WHILE some computer companies are looking at Rhodesia as a potentially lucrative new market, others are still feeling the effects of the revolution in Iran.

Both IBM and ICL have confirmed that they are interested in selling their systems in Rhodesia but say that they are still awaiting enquiries from prospective clients.

"We have no definite plans," said an ICL spokesman, but it is likely that ICL will market a selection of its products rather than the whole range.

Honeywell and CDC on the other hand have reported that they have withdrawn all support for their systems in Iran and are awaiting compensation for work already completed.

Honeywell says it is owed about £2.5 million.

"We sent one of our people to Iran about three months ago," said a Honeywell spokesman in Italy, "but he reported that the situation had not changed. The Iranians keep sending us telexes requesting spare parts but we have not provided them with anything."

CDC was one of the first US companies to pull out its employees from Iran and although in March last year it reported an "as needed" service was being provided from its Brussels office, this has now been discontinued.

IBM (Iran), which employs about 240 staff, 238 of whom are Iranian, is providing only a basic servicing operation.

NEWS IN BRIEF

Knighthoods for directors

TECHNICAL director of GEC, Robert Clayton, who is also chairman of the GEC-Fairchild joint microelectronics venture and a member of the National Enterprise Board, has been awarded a knighthood in the New Year Honours. A knighthood also goes to Kenneth Corfield, chairman of Standard Telephones and Cables.

ICL's director of communications, Peter Hall, gets the OBE, and Ronald Wood, managing director of Muirhead Data Communications, gets a similar award for services to export.

Two other industry figures are appointed CBEs. They are P. E. Trier, director of R&D at Philips Electronics, and P. A. McCunn, chairman of Cable and Wireless.

Manx move

THE Isle of Man government, which is to break away from the UK on VAT and Custom duties in April, has decided to switch its Univac 90/30 system (CW, July 10, 1975) for a Univac 1100/00 bit-slice mainframe.

Early retirements

AS part of its plans to bring in a new and younger workforce that will more readily accept robots and associated technology, the French car manufacturer Renault is to ask male employees over 57 and women and handicapped employees over 56 and three months to accept early retirement. The retirement proposal will affect over 4,000 people.

Drivers filed

A FILE listing all drivers who have had their licences revoked for motoring offences will be added to the Police National Computer, Hendon, in May.

Olivetti goes back into mainframes

AN announcement is expected this month that Olivetti has signed an agreement with IPL Systems of the US under which the Italian company will market IPL's IBM-compatible processors in Europe. Sources close to the two companies say that an agreement has already been signed, but Steve Ippolito, founder and president of IPL Systems, declined to comment.

"A date has been set for us to make some public announcement and I cannot say anything until then," he told Computer Weekly.

Last autumn Olivetti formed a new company, Olivetti Computers, with the aim of marketing and perhaps eventually manufacturing IBM-compatible processors in Europe (CW, November 8, 1979).

The IPL machines are marketed in the US by Control Data as the Omega 480 line, and in Europe they were marketed for a short time by Itel as the AS/7020 and 7030. They were matched against the IBM 4341 with the 7020 claimed to offer the same power, and the 7030 available as a field-upgrade offering 40% more power (CW, July 19, 1979).

Olivetti's first mainframe venture was in 1960 when it set up a joint company, Bull-Olivetti, with Machines Bull of France. The aim was to produce machines to complement the French-built Gamma range and in 1966 it introduced the Gamma 115. By then however, Bull had sold out to GE of the US and Olivetti decided to sell out its minority holding in what had become known as GE-Olivetti.

● Meanwhile National Semiconductor's National Advanced Systems Corp, Nasco, which took over the rump of Itel's IBM-compatible marketing operation, has signed agreements with Hitachi to market versions of the Japanese manufacturer's M-180 and M-200 in both the US and Europe. Talks have been going on between Olivetti and Hitachi about the same machines, and a non-exclusive agreement covering marketing in Italy and Spain is still possible.

A third Japanese company, Mitsubishi, is developing IBM compatible machines, and is looking for US and European marketing partners. Its line is expected to include five medium and large-scale models, but they are unlikely to be available for about three years (CW, November 8, 1979).

Future of the micro market

THE news that a receiver has been appointed to the Byte Shop chain (CW, December 20/27, 1979) has sent a tremor through the personal computer retailing business, and questions are being asked about the viability of this type of operation.

An opportunity to hear some of the answers will arise at the Microsystems 80 conference when Derek Moon, a director of Currys, will provide some insights into the decision taken by his company to market microcomputers in its chain of high street shops throughout the UK.

Microsystems 80, a combined conference and exhibition, will be held at the Wembley Conference Centre, London, from January 30 to February 1. A conference programme and registration form can be obtained from Business & Industrial Training, Room 614, Dorset House, Stamford Street, London SE1 9LU, or telephone 01-261 8417.

Undercutting IBM

IBM USERS could be interested in one and two-year fixed term rental plans from Atlantic Computer Leasing that undercut IBM's own rental prices by up to 20% and involve no additional usage charges. IBM machines covered by the Atlantic plans include new 3031, 3033U and 3033N processors. The 3033N is the cut down version of the 3033 announced in November.

Longer life for govt computers

THE procedure used to select and buy government computers is being changed, with the funding for projects being transferred from the Central Computer Agency to individual departments. At the same time the CCA is being restructured and will now be known as the Central Computer and Telecommunications Agency.

Meanwhile a new maintenance deal has been worked out with ICL to extend the operational life of 1900 and System 4 machines and peripherals at several government installations. It is estimated that a total of at least 200 years of extra life will be achieved.

This scheme extends the standard 10-year contract to 12 or 13 years up to 1984 when models of these types will be fairly thin on the ground.

Joint ICL-CCTA technical teams will check on all installations to decide on maintenance requirements, and ICL is setting up refurbishing lines to bring electro-mechanical peripherals back to operational standard.

The restructuring of the CCTA is intended to take account of the growing link between telecomms and computers. The agency's Telecommunications Division will cease to exist as a separate unit and its work will be integrated into the four remaining divisions.

Until now the CCTA has been responsible for paying for most government hardware and systems from the computers and telecommunications vote. In future the systems will be ordered on repayment terms with the CCTA placing the orders and then recovering the money from the departments concerned.

Inmos picks Bristol

● From front page

Ian Barron said that the construction of a second and bigger UK factory would be started in two to 2½ years and that it would be located in an assisted area. Barron pointed out that the second plant would be financed out of the profits generated by the Bristol operation, indicating that he has high hopes for Bristol's immediate commercial success. The second plant would produce the same range of devices as the Bristol factory.

Barron predicted that Inmos would have 4,000 employees in the UK by 1984.

The choice of Bristol for the first Inmos factory provoked an outcry from politicians in the Tyne and Wear assisted area that was on the short list for the plant. With the first factory at Bristol, the South Wales assisted area, which was also shortlisted, now looks favourite for the second factory.

Warning by Prior on jobless predictions

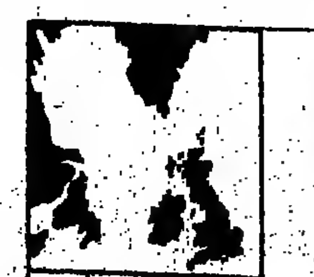
WILD predictions about computer-produced unemployment could do great harm by slowing down the UK's pace of adaptation to new technology. So claimed Employment Secretary James Prior in introducing his department's study, The Manpower Implications of Micro-Electronic Technology (CW, October 4, 1978) which is now published.

Prior was echoing the report's view that quick introduction of micro technology was essential to maintain growth and employment. He has given the Minister of State, Lord Gowrie, special responsibility for microelectronics and for overseeing government action in response to the report.

The report was intended to go into specific case studies in more detail than previous work, which is criticised for making fallacious assumptions. Among these the report gives: Assuming static demand for goods and services; lack of analysis of economic interrelationships and arbitrary criteria used to determine demand for labour.

A massive public training programme would not be effective in achieving the required adaptation, the report says, suggesting that the main responsibility for training must be with industry itself.

The report is available from HM Stationery Office at £3.50.



COMPUTER WEEKLY
Number 688 Thursday, January 10, 1980 Price 20p

Briefing

Euronet penalty talks

NEGOTIATIONS are taking place to agree the level of penalty to be paid for the late delivery of Euronet. Two contracts are involved: one between the European Commission and a consortium of nine PTTs led by the French PTT, and the other between the PTTs and an international consortium of companies led by the French communications company SESA.

The Commission has notified the PTTs of its intent to recover a penalty under the original contract placed in 1977 which allows for 1% of the contract value of FF 17 million, nearly £2m, per 20 days' delay.

Personal entry

THE much heralded entry of Hewlett-Packard into the personal computer market shows that the company has a significantly different idea of what makes such a system from most other manufacturers. Called the HP-85 it costs under £2,000 and is a fully integrated and therefore portable system.

● More details — page 12

Burroughs launch

THE Burroughs B90, successor to the B80 office computer, is announced in the UK this week. Most striking feature is a new dual double-density double sided floppy disc carrying a total of 6 megabytes (CW, October 25, 1979). The B90 is to be built in Scotland.

Byte Shop buyer

NEGOTIATIONS are understood to be nearly complete for Comart, distributor of Cromemco and Horizon micro systems, to buy the Byte Shop retail chain, which has been operating under receivers Stoy, Haywood and Partners since last month (CW December 13, 1979).

Second signing

SECOND company to sign with ICL under its new Systems House Trading OEM programme is IA Datasystems of Hitchin, Herts, which plans to offer customers hardware-software solutions based on ICL's 1500 series of terminal computers. First company to sign was Systemsolve.

Japanese expand

JAPANESE semiconductor manufacturer Nippon Electric is planning to expand its European production. It already has a plant in Eire and is now looking in Scotland, on the Continent, and again in Eire for another site. The target date for the new plant is 1981.

Chip challenge

"THE challenge of the chip," the exhibition planned by the Science Museum in London, is now due to open next month. It aims to set out for the general public the potential of microelectronics and its applications.

CW chess protege third in national junior tournament

COMPUTER WEEKLY'S chess-playing protege, 12-year-old Jaime Gorman, came third out of over 100 players in the under-14 group in the national Evening Standard Junior Tournament last week. This was despite the fact that he was the youngest player in the group and that he was suffering from a dose of tonsilitis so bad that he almost withdrew on the third day.

Jaime scored six points out of nine, winning five games and drawing two. This performance established him as the best under-14 Kent player and best south of the river player.

This was Jaime's second triumph in a month. Before Christmas he scored four points out of six in the Islington tournament, despite missing a round when the person giving him a lift to the tournament overslept! Jaime was again the youngest player in a tournament open to adults.

His performance was good enough to qualify him to take part in a competition in which he won first prize — an Atari Video Computer complete with chess game cassette.

Jaime Gorman

Breakthrough for LSI chip technology

by Keith Jones

ULTRA high speed gallium arsenide-based semiconductor technology, which has been dogged by fabrication problems until recently, now looks like becoming one of the most exciting hardware developments of the early 1980s.

Industry sources in the US indicate that at least two companies working on gallium arsenide technology — Rockwell and Hewlett-Packard — have achieved significant breakthroughs. They are now growing gallium arsenide crystals three inches in diameter — big enough to produce chips at an acceptable cost — and Hewlett-Packard has achieved a density of 150 logic gates per device. Rockwell is up to 70 gates per device but is predicting 700 per chip by the end of this year, a density that compares favourably with existing bipolar devices.

IBM is understood to be spending far more on developing GaAs technology than on Josephson Junction devices, even though the company has publicised its Josephson work far more widely. Late last year IBM announced that it hoped to have a prototype Josephson computer by 1984 with a speed of 70 million instructions per second and to put a 250 mips machine on the market by 1987. But industry sources suggest that a high performance computer based on GaAs devices could be unveiled as a product by 1984.

One great advantage of GaAs over Josephson technology is that GaAs devices can work at normal temperatures while Josephson junctions only switch at temperatures near to absolute zero.

Supercomputer specialist Cray Research has started work on the evaluation of GaAs and Josephson technology at Cray Labs, its new technical centre at Boulder, Colorado. Rockwell is a likely potential source of GaAs devices for Cray while Josephson devices could be obtained from the Japanese firm Nippon Telephone and Telegraph (CW, January 3).

Another supercomputer manufacturer, Control Data, which builds the Cyber 203, was not prepared to comment whether it was actively investigating the use of GaAs or

➲ Turn to back page

US to probe claims that Soviets misused Univac kit

ALLEGATIONS that a Univac computer is being used in military aircraft design near Moscow have been made in the US amid "spy satellite" observations that indicate a new supersonic bomber and three new fighters are about to enter service in the Soviet Union.

The US government has started an inquiry, as it has done over a further allegation that an IBM computer being used at the Kama River truck plant, a few hundred miles east of Moscow, was diverted for military purposes in the recent Soviet invasion of Afghanistan.

About a year ago the US Commerce Department and Cocom, the Nato committee that has to approve all high technology sales to East European countries from the West, licensed Univac to ship a 1100/10C (the "C" denotes a Univac machine of less than commercial power) to the State Institute for Design and Research in Synthetic Rubbers, outside Moscow.

Unknown to Univac, the Institute is sited near a Tupolev aircraft factory which handles the design and manufacture of the "Backfire" supersonic bomber and civilian aircraft.

With a Swedish — and non-Nato-controlled — stress analysis package called Aska being supplied for use on the Univac 1100 there has been high-level speculation that aircraft cross-sections and not synthetic rubbers are being analysed.

Univac says it is "distressed" by the allegations and will co-operate with the US government investigation.

● Angered by the Afghanistan coup, President Carter has frozen the export of computers to the Soviet Union and cut grain shipments indefinitely.

Death at sea

ON the last leg of a round voyage to Rio de Janeiro, John Povey, one of the founding directors of systems house Hill Price Davidson, was lost in the Atlantic approaches to the Channel. Povey's body and that of his woman companion were recovered from a life-raft off the Cornish coast last week.

Povey, who had taken a sabbatical leave to sail to Rio, was a specialist on IBM mainframes. He was due to return to work within the next few weeks.

Political row on Inmos factory

A POLITICAL row about the siting of the first Inmos factory in Bristol has already started, and is expected to blow up fully next week when Parliament reassembles after the Christmas holiday.

This is despite the fact that Industry Secretary Sir Keith Joseph has still to approve the second £25 million investment in the company, essential for the building of the factory.

It was widely assumed that Inmos would locate its manufacturing site in one of the assisted areas of the country, with the North East and South Wales among the favourites. This assumption stemmed from the fact that the company's sponsor, the National Enterprise Board, has a commitment to provide support for the assisted areas.

Alan Williams MP, who was Industry Minister in the last Labour government, has claimed that Inmos gave an undertaking to locate its first two factories in assisted areas, and that it was only on this undertaking that an industrial development certificate was granted for the company's Bristol technology centre.

According to Iann Barron, Inmos' UK director, no such pledge was given.

Williams now plans to organise a protest against the Inmos decision in collaboration with the regional groups of Labour MPs.

There is a lot of anger in the North East about the Inmos move. Tyne and Wear Council Labour leader Michael Campbell has described the decision as "disgraceful and a betrayal of what we tried to do". He was referring to MARI, the Microelectronics Applications Research Institute formed in the area last year as an enticement for Inmos.

INSIDE THIS WEEK'S CW....

SPOTLIGHT ON ITALY

In a country of small businesses the leading computer companies are small systems specialists. Anthea Bellam visits Olivetti and Masi. Pages 20/21

FIRST PROGRAMMER

What is Lord Byron (yes, the poet)'s connection with programming? Well, his daughter's name has been chosen as the name of the new programming language, Ada. Donald Davies plots the stormy life of the world's first programmer. Page 18

JOB VACANCIES: PAGES 24-63

ALSO . . .

COMPUTER WEEKLY

Vol. 29 No. 698
Thursday, January 10, 1980

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Computer Weekly has a circulation each week of over 99,000 including the highest fully requested circulation in the UK.

ISSN 0010-4787

COMPUTERVIEW

Now ICL stands alone

NOW THAT the National Enterprise Board has divested itself of its 25% stake in ICL, the company is effectively free from all external involvement and interference. It therefore takes its place with only three other companies which live or die entirely by the general purpose full-range computer industry, the others being IBM, Burroughs and NCR.

Univac is about half of Sperry Corp, a company with unconnected interests in sundry other areas such as farm machinery. Honeywell is about half of another large group which is balanced by a control systems company. Control Data is not a major competitor in the general purpose computer market. Siemens is a very small part of a very large group, and all the Japanese manufacturers bar Fujitsu are also part of larger groupings, while Fujitsu has major interests in telecommunications outside the computer business.

CII-Honeywell Bull is still substantially in the pocket of the French industry ministry, which has 20% of the French holding in the company, while the St Gobain Pont à Mousson industrial conglomerate has another 20%.

With the best will in the world, the boards of companies like Honeywell and Sperry cannot always look to the interests of Honeywell Information Systems and Univac without taking into account the needs of the other parts of their empires. If Honeywell Controls goes through a sticky patch in what has historically been a cyclical market, it has to be less easy to devote all the resources necessary for Honeywell Information Systems' long-term good.

The one constraint still hanging over ICL is the £40 million loan from the government for the development of 2900. The theoretical debt has now risen to between £80 and £90 million but only becomes payable if profits exceed 7½% in any year. If they do, ICL is required to pay up to 25% of that year's profits to the government under a complicated formula. The obligation runs out in 1984, but until then the company is artificially constrained from allowing its profits from going through the 7½% mark, since clearly the money can be more effectively used within the company.

The problem is not a very serious one in that ICL can find plenty of valid uses for excess profits.

The one deleterious effect of this residual obligation to the government is the negative impact it has on the way the company is seen by investors and potential investors. When ICL is weighed in the balance against the mass of UK industrial companies, its performance and prospects are way above average, and the share price by no means fully reflects this. A whole mass of British companies are making profits which have such a large element of inflation in them that by the yardstick of "current cost" or inflation accounting, they are scarcely profitable at all.

By contrast, when current cost accounting rules are applied to ICL's figures, the company comes out slightly more profitable than under the traditional historical accounting methods under which all company results are precisely drawn up.

Being undervalued by the stock market tends to make it more expensive for a company to raise money, by rights issue or whatever, than it need be.

The other significant cloud on ICL's horizon is a problem entirely of the company's own making. In comparison with its US competitors, but in common with most British companies, it is reticent about revealing details of its business.

Analysts have expressed concern at the possible effects of a trend towards leasing by ICL's customers. Much of this business is done through ICL's associate leasing companies Midland-ICL Leasings and Computer Leasings. Since these are associate companies in which ICL only has a stake, debt building up from growth in the leasing business would not show up in ICL's balance sheet.

The company is also harming itself by not squashing more unequivocally the rumours assiduously promoted by its competitors, that it plans to withdraw from the large systems market. The best that the company will say is that large systems are broadly as profitable as ICL's business as a whole — but with most of the development money for VME/B and VME/K now spent, large systems should be beginning to register as a very attractive part of ICL's product spectrum.

But unless ICL spells out its case for large systems in incontrovertible detail, the rumours will continue to be believed.

LETTERS to the EDITOR

Who will help schools?

I REFER to the letter (CW, December 6) from M. J. Caulfield, headmaster of a school in Finchley, who issued a plea for a paper tape punch/reader.

We are in a similar position to Mr Caulfield in that we have a Research Machines 380Z provided by the Education Authority. The school and the Parents' Association have raised over £1,000 to improve the facilities including the provision of twin floppy disc drives.

We have over 100 pupils following 'O' Level and CSE courses, and so "hands-on" time is strictly limited. Clearly the addition of paper tape (or indeed marked sense card) facilities would be a tremendous advantage, but at the moment there is little possibility of raising the necessary money.

I am sure that there are firms with computer equipment surplus to their requirements whose equipment will, for one reason or another, end up on the scrap heap. I wonder if it would be possible for such firms to offer their equipment to local schools, through the education office if necessary.

Even items which are not working may be useful to schools for their museums. For example, we have been trying unsuccessfully for some time to obtain some ferrite core store to show to our pupils.

Perhaps it would be possible for you to offer to publish in Computer Weekly at regular intervals, a list of those firms which write to you offering equipment to be made available to genuine educational establishments.

Many schools are now doing their best to encourage pupils to follow a career in computing. It would be nice to think that the industry was giving all the help and encouragement that it could to those schools.

H. J. SKINNER
Headmaster

Southam School,
Welsh Road,
Southam,
Leamington Spa.

Computer Weekly is willing to take up Mr Skinner's suggestion of publishing lists of firms offering computer equipment to educational establishments. Any companies with such equipment to offer should send details to the editor.

Poor response

I WAS interested in the suggestion from Alan Haynes of Lodge Park School (CW, (November 15, 1979) concerning industry's contribution to computer education.

We have offered our computer facilities free of charge to three local schools. Our only response has been one telephone call expressing interest, the remainder not having the courtesy even to reply.

In my view we should help the local community whenever possible, and in particular in the area of education. However, this must be conditional on teachers responding, as Alan Hayes did, in a positive manner.

C. I. BLACKMAN

DP Manager,
Merriott Mouldings Ltd,
Merriott,
Somerset TA16 5PO.

Natural dates

IN RESPONSE to Tom Gilb's article entitled Why can't we write dates and days more naturally? (CW, October 25, 1979), I would like to say that we at CSS have done something about it. Our database management system, NOMAD, handles dates in a way which few other systems, if any, can match.

Dates are stored as integers and hold the number of days since the beginning of 1600 AD. This means that simple arithmetic can be performed with dates in order to obtain such things as the "no. of days overdue", etc.

Database items representing dates are actually declared in the database definition as dates as opposed to simple integers, therefore when a date item is requested for display in a report the system knows that it must display the item in date format.

The particular date format required is also defined in the database definition of the date item; either explicitly or by default.

The following examples will illustrate my point:

Database Definition	Example of date displayed
ITEM PURCHASE DATE	11/23/79
ITEM PURCHASE DATE 'DD MON YY'	23 NOV 79
ITEM PURCHASE DATE 'DDTH OF MONTH YYYY'	23RD OF NOVEMBER 1979

Should the display format defined in the database definition not be appropriate in a particular case, it can be modified in the specification of the report, e.g.

LIST BY PURCHASE AS DATE 'WKDY DDMONYY' ....

Would display the purchase date as

FRI 23NOV79

A similar degree of flexibility also applies to the input side of the system.

For example, a date on an input transaction in the format DDMMYY could be read using the statement:

SET &PURCHASE FROM DATE 'DDMMYY'

J. W. SHARKEY
European Product Marketing Manager

CSS International (UK) Ltd,
London

Importance of listening

I APPLAUD the journalistic integrity at work in your October 25 issue in which you pit two of your columnists against each other.

On page 4, Chad comes down spectacularly against the value or importance of listening, a theme stressed in current Sperry Corp advertising and employee development programmes.

On page 61, Trader takes exactly the opposite viewpoint, and I quote: "Another stumbling block for effective communications is the listening barrier, and that affects the transmitter and receiver alike. Hearing is one thing: listening is another."

I wonder how your readers would vote, Chad versus Trader? I'm biased, so I won't vote. I will say that in the short time this campaign has been running in the US and Europe, we have received more than 11,000 requests for more information on listening.

I'll also say that the feedback from the field is that our customers and prospects say that they want to be listened to. And that is the point of the whole campaign. We understand that and are dedicated to better listening.

And finally, I'd like to think you are listening to me and, perhaps, congratulating me for reading both articles. I hope the rest of your readers did, too.

J. PETER HYNES
Director of International Communications

Sperry Ltd,
Cobham,
Surrey.

Missing the point

IT is now necessary to protest about the rejoinder by Focus to Frank Land's letter (CW, November 29, 1979), about the review (CW, September 20, 1979) of Mumford and Henshall's book on participative system design.

The Focus rejoinder included the message that "computer project groups should at all times and at all stages include not only company management and representative users, but DP management", as if this was contrary to the philosophy of the book. But in fact the book carries exactly the same message as the Focus rejoinder.

The key point which Focus has missed is that extra time spent by everyone involved at the early planning stages is more than compensated at the implementation stage and in subsequent projects in the same department.

JOHN HAWGOOD

Computer Unit,
Durham University

Recorded phone calls

IN Computerview (CW, November 29, 1979) you imply that the automatic recording of telephone call details is a good thing. Surely such recording is hardly in the best interests of preserving privacy of communication?

V. N. TAYLOR

Milton Keynes

Information about what calls a subscriber has made is certainly sensitive, but other companies such as banks are aware of the details of the business their customers have transacted and are able to keep it confidential. The Post Office should be able to as well.

The powers of the police to inspect these records should be rigidly controlled, as should their powers to tap telephones and inspect bank records.

In addition, customers could opt to have no record kept, or to have only the called exchange recorded, not the full number. —EDITOR.

THE EDITOR welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.

1984 and all that . . . .

THIS cutting, adding a new twist to an old story about computers, was sent in by M. Barnes of Swanley, Kent, who wins £5.

The man who received a bill for £0.00 from his local Gas Board very sensibly ignored it. Shortly afterwards he received another bill for the same non-amount.

Realising a computer was at work he obligingly sent off a cheque for £0.00 and was sent a receipt for nothing.

That, however was not the end of the matter. When his bank processed his £0.00 cheque the manager rang up and said: "What are you doing? Our computer has just gone up in smoke."

Daily Mail

'Speed introduction of new technology in UK industry'—NEDO

THE vital importance of speeding up the introduction of new technology in UK industry was chorused on all sides at a meeting on Wednesday of the National Economic Development Council, the first with Mrs Thatcher in the chair. The TUC urged the government and the Council to accept the idea of new technology agreements, while the CBI warned against "panic measures" that might be adopted in response to fears of rising unemployment.

Employment Secretary James Prior also presented a paper based on his department's recent study on micros and jobs (CW, January 3). He emphasised the importance of not missing opportunities to modernise industry and improve exports, and suggested that greater flexibility of the labour force would be needed.

Papers were also presented from the staff of the National Economic Development Office itself, dealing with industrial applications of microtechnology and the manpower implications for industries affected.

The CBI, in asserting that new technology was essential for growth and avoiding future unemployment, recognised the social problems involved and stated that the efficiency of the labour market needed to be improved, to ease skill mismatches and increase mobility.

Following on from this, the Confederation is soon to publish a discussion document for firms to show their employees, entitled "Jobs: Facing the Future". This proposes a co-ordinated programme by government, industry and unions to examine training, ways of reducing working hours and bringing in early retirement, and means of improving productivity, entailing changes in attitude.

The TUC's proposals include conclusions of its working party's visit to the US in the autumn.

Public support in cash for new technology developments was essential, the TUC had concluded, as the substantial commitment needed could not be left to the marketplace.

Disturbing decline

THE National Economic Development Council should be the focus for a technology strategy on an industry sector basis in order to promote new technology in industry, in the view of the Advisory Council for Applied Research and Development, which has just produced a study entitled "Technological change: threats and opportunities for the United Kingdom".

ACARD, which advises the Cabinet, is "disturbed" at the decline of R&D spending in UK industry compared to our competitors, and recommends strongly that the government encourage industry to reverse this, with an R&D strategy closely aligned to business strategy. Our capacity to absorb foreign technology must be increased, and the R&D needs of small firms need to be dealt with.

The service industries in particular should be looked at as a potential source of growth.

Sir James Menter, chairman of the ACARD working party involved, said that in addition to a learning curve we may need a "forgetting curve," to get rid of outworn products and practices.

Have micro, will travel. . .

ONE advantage of the new-found portability that microprocessors can give to computing is that systems can be brought to you for demonstration, rather than the other way round.

An example of this happened last week, when Sidney Schubert, managing director of Dakstata, brought the new Findex System 100 computer into Computer Weekly's editorial office. He is seen here with CW secretary Gulwant Deol as she tries her hand with the Z80-based system.

The standard System 100 comes equipped with 49K of RAM, built-in keyboard, 21 character terminal printer, six-line plasma display, 200K-byte floppy disc drive and CP/M operating system in ROM. This costs £3,400. A further £2,000 replaces the disc drive with a 129K-byte bubble memory store.

Euronet database directory upgraded

THE Euronet Diane online directory of databases and their owner organisations is receiving a major upgrade this week. The directory will now support 10 simultaneous accesses instead of the four which were implemented for the pilot service last summer.

The British Post Office has implemented the directory on a temporary basis for Euronet's sponsors, the Commission of the European Communities. It is typical of the international consultancy services the Post Office provides and for which last autumn it set up its Telconsult division.

The directory is being run on a Perkin-Elmer 8/16 minicomputer in London which the Post Office has used in several development projects in packet switching for EPSS, IPSS and PSS.

Eventually it will be transferred to Luxembourg to become one of the databases on the Echo host service run by the European Commission, alongside databases on research in agriculture, the environment and other fields covered by Community-sponsored projects.

Information is held on the 10-megabyte system in the six official languages of the Community: English, French, German, Danish, Dutch and Italian, and is accessed using five keywords: Help, News, Diane, Host and Database, and their equivalents in the other languages.

So far the Diane information service has eight host computers providing 38 databases and plans exist for 23 hosts and 175 databases.

The directory is accessible via Euronet connections, which in the UK include dial-up and leased line now, while access via the Post Office PSS packet network will be possible when it starts up this spring.

● The feasibility of extending the Euronet Common Command Language for use with fact retrieval systems as well as bibliographic data banks is being studied by Scicon under a contract with the EEC. Anyone interested in contributing to the study should contact Alan Negus or Andrew Snowden at Scicon on 01-439 9761.

Amdahl looks to Japan

HAVING failed in its attempt to acquire communications processor manufacturer Comten last year Amdahl is now talking to Fujitsu about adopting the Japanese company's 2806 communications processor for use with the Amdahl IBM-compatible mainframes.

The 2806 is one of the Fujitsu Network Architecture products. Fujitsu says FNA is fully compatible with IBM's Systems Network Architecture and the specifications of the 2806 match those of the IBM 3705 communications processor. It can run a Fujitsu control program or IBM Network Control Program.

Meanwhile Fujitsu's plans to enter the US market in its own right through a joint venture marketing company with TRW are progressing. Several people previously involved in National Semiconductor's computer marketing operations have joined the newly-formed TRW Business Systems Group.

The joint venture will start by selling terminals and office computers from Fujitsu but plans to move up-market with the new Fujitsu M-130, 140, 150 and 160F line of compact mainframes which were introduced to compete with IBM's 4300.

Downtime

by Chad

It's all part of the service . . . . .

I FIND that American hotels conscientiously give you a form to fill in when you leave, asking for your comments on the service. Then, just as conscientiously, they ignore what you said.

I still fondly imagine that I will get an apologetic letter from someone after I say, "Well, the venetian blind fell off the wall, and I couldn't turn down the heat, and I couldn't get a coffee at 10pm," but my imaginings stay just that.

Presumably to make it difficult to register complaints like these, hotels in the States are now introducing computerised questionnaire machines. As you check out you are faced with the clever device in my picture above, called a Tellus. This asks you 11 carefully chosen questions, and the buttons you push in reply are recorded for digestion by some nice impersonal computer.

To respond to "Was our service courteous and efficient?" you are given the choice of "Great", "OK" and "Needs attention". What you are not told about is the repeater display behind the counter that lets the clerk see your answers. Thus if to "Are our employees knowledgeable and efficient?" you answer "No", he can release the trapdoor you are standing on to deposit you in the basement torture room. Of course that could be automatic — a thought for future refinement.

The gentle art of verbalising

I AM convinced that the most pressing need for language translation by computer is in helping to decipher the bumph turned out by computer companies. The brochure advertising IBM's talking typewriter for blind typists contains the following sentence "In addition to verbalising the words being typed, the Audio Typing Unit is capable of verbalising over 200 audio reponses."

I can't be 100% sure, but I think this means that it can say 200 different things.

MICHIE'S PRIVATEVIEW

If we don't, then others will...

Professor Donald Michie is head of the Machine Intelligence Research Unit at Edinburgh University.

AS a challenging goal for long-range research, a recent Privateview envisaged the assembly of a structure from prefabricated parts by a team of co-operating robots (CW, November 29, 1979). The project is do-able — eventually. Moreover if we don't, then sooner or later others will. In the process, research teams will find themselves hi-jacked on wings of innovative resource by the sheer seeming impossibility of the task. But will it butter industrial parsnips?

The shop-floor, as it happens, offers one of the more immediate environments for exploiting such work, and not only for spin-off (industrial vision unit, intelligent warehouse vehicle, trainable manipulator, knowledge-base management system, etc). The potential utility of a retrainable multi-robot intelligent system becomes apparent as soon as the structure to be assembled is not a beach hut or a Bailey bridge, but a jeep or a British Leyland mini. But is this not a rather strange way to make a car?

Not necessarily. Volvo in Sweden has tried the one-team-one-car approach as an alternative to Charlie Chaplin's "Modern Times" scenario. They were, of course, employing teams of humans, not robots; and in the specific conditions of the trials the results were equivocal. But the fact that it was considered suggests that, logistically at least, the approach may make sense. If so, then in manufacturing technology robotics might as well follow that path as any other, especially in view of added versatility — a new product line requiring little more than retraining the team, instead of having to restructure the factory.

The phrase "intelligent robots" has been thrown around. Like it or not, this is now the name of the game. Personally I like it. From much careful thought and discussion with colleagues, I have acquired a feeling of uneasiness about some of the directions along which unintelligent (but thanks to modern computer power) ultra-clever, devices are being developed. Once a computing system begins to invade problem-solving domains of high complexity (and certainly assembling a mini is one of these) then there are arguments which favour designing it in such a way that it can tell us at any stage what it thinks it is doing.

Dr Thomas Malone, an industrial psychologist, headed a committee which investigated the Three Mile Island nuclear reactor accident. The system's style of communication with its human partners seems to have been less than ideal. "The operator," writes Malone, "was bombarded with displays, warning lights, print-outs, and so on to the point where the detection of any error condition and the assessment of the right action to correct the condition was impossible."

Describing the Malone Committee findings, the computer writer F. L. Simpkins observed, "There is a system design lesson here for every system analyst working in the industry: *the human part of the system has more limits than the computer part.*"

It follows that certain system designs need to be imposed to scale down machine operations within a format which guarantees man-machine communicability at the conceptual *level*. In knowledge-engineering jargon, an Expert System should have been embedded in the Three Mile Island software.

The Americans are well apprised of the point. The National Science Foundation (American counterpart of the Science Research Council) has under its Science part a programme called Intelligent Systems. Expenditure on this single programme is now running at more than three million dollars a year, and rising. Other artificial intelligence programmes are also carried on by NSF. Additionally, NSF's Engineering part supports a variety of AI studies, and has a declared interest in furthering an area styled Cognitive Systems Engineering.

Against such a background, what is one to say of current British activity? If one brings into play the present Japanese spending on intelligent systems, what can one *then* say about the couple of hundred thousand a year (at most) devoted to the subject here? Nothing, I think. A veil should in decency be drawn.

But to recover from stagnation and to leap-frog our rivals is something that this country has done before, and continues to do from time to time. There is no lack of computer scientists ready to play their part. The next move is with the government enablers.

FOCUS

End of a data decade

IN case the industry hadn't noticed the date, BIS staged a Data Decade conference in the closing weeks of 1979. For a decade which has been noted for the growth of conferences, this all-purpose event was a fitting tribute.

Not that much new emerged. As has become all too typical of such conferences, the role of the DPM was hammered while the role of the micro was praised. It hardly seemed necessary for the collective ranks of industry personalities to inform us where the computer world was going. Anyone who keeps even half an eye on Computer Weekly or is on the receiving end of sundry product mailing lists would have been well aware of the trends.

As is customary, the organisers failed to include a practical session presented by a standard issue DPM. Had such an individual been invited, the industry world have learnt that the fears of the professional do not extend to combating the mighty micro or coping with rapid development of new technology. The problems faced by the DP installation are those of coping with the ever-increasing demands of management and user departments.

With the current business outlook far from promising, companies are looking for improved computer productivity and cost effective processing. Any distributing involved is more likely to feature increased workloads to the central computer system.

Containing such demands is not easy at the best of times. Containing it in the face of acute DP staff shortages plus lengthy equipment delivery dates, keep the average DPM fully extended — possibly too extended to attend Data Decade conferences in order to hear the accusation by a former BCS president that computer people had failed the challenge.

According to both Alex d'Agapeyeff of CAP and Peter Hermon of British Airways, DP professionals have an extremely narrow view of their responsibilities, being far more occupied with technology than corporate management.

Just who should take responsibility for running the company data processing facilities was not made clear. That such equipment could represent the largest chunk of company investment funds is apparently of little concern. Certainly senior company management would not relish the thoughts of being called out at midnight to deal with a succession of head crashes or air conditioning failures.

The data conference would have served the interests of the industry far better by boosting the role of DP management rather than denigrating it.

None, it seems, is willing to come to the aid of the DP party.

10 years ago

From Computer Weekly January 8, 1970

THE announcement that the Meteorological Office was to install an IBM 360/195 worth nearly £4 million ended months of speculation as to which manufacturer would get the order . . . Collaboration between savings banks in three Scandinavian countries led to one of the largest orders ever placed for computers and peripheral equipment, worth over £18 million, which went to Saab and Facit.

Growth of newspapers is threatened by home information systems

DEVELOPMENTS in home information systems and electronics publishing are likely to halt the growth of newspapers in the US by 1986, according to Electronic Mail and Message Systems, published by market researchers International Resource Development of Norwalk, Connecticut.

Paper companies expect the consumption of newsprint to go on growing by about 3 or 4 per cent a year, and based on this they are making large investments in paper mills.

But this growth will not last, according to the newsletter, and the paper industry, which has previously found that small swings in demand have led to large swings in prices and profits, will experience severe problems.

Newspapers will lose a significant part of their advertising income while the user base of home information services is still quite small, because the early users will be the big spenders that advertisers aim to reach says the newsletter.

However, the new services are likely to exhibit "skyrocketing growth" with many services being established on a regional basis by next year and at least one available nationally by the year after.

Errors policy

AN errors and omissions policy for the computer industry has been introduced by Greenway Insurance Brokers Ltd, brokers for Lloyd's. The policy is available to computer bureaux, data processors, computer programmers and systems analysts, and is to be underwritten by Lloyd's. It provides £250,000 or £500,000 in coverage.

Low-cost IBM 5100 imminent

NEW product announcements are expected early this year from IBM, Burroughs and Perkin-Elmer Data Systems.

IBM's long-forecast lower cost version of the 5100 desk-top microcomputer are thought to be imminent, and the suggestion is that the company has in the wings a 5105 with 16K-bytes of memory, 960 character display, tape cartridge and small printer priced at about \$4,500. There is also thought to be a 5130 on the way, supporting multiple terminals and priced between \$21,500 and \$37,500.

Next in Burroughs' new "900" family of computers is expected to be a B6900 at the top end, and the company is also expected to take its power at the top significantly higher than hitherto with a machine called the B8900.

Perkin-Elmer Data Systems is planning a 3210 to come in under its smallest current 32-bit machine, the 3220, and a 3224 which is expected to be a 3220 processor with addressing increased to one megaword.

Bank union's rules for new technology

PUTTING forward its own proposals for the introduction of new technology, the Banking, Insurance and Finance Union has recommended that its members should not co-operate with any employers' automation plans unless prior agreement on future employment has been reached.

Other recommendations included in the BIFU microelectronics committee report are that there should be no compulsory redundancies; negotiations should take place on whittling down the working week to a four-day 28-hour level with no reduction in salary; there should be compensation for changes in an individual's working pattern; and that staff should be informed of their prospects with the company for the next 15 years.

BIFU now intends to set up technology committees in each company with which it is involved.

Firnberg's farewell tribute to NCC members

FIRNBERG . . . . "spur for the NCC to find solutions".

"THE sheet anchor which ensures that the National Computing Centre talks sense and proposes methods based on practice as much as on theory is the membership."

So said David Firnberg, the retiring director of the National Computing Centre, in his last editorial in the December issue of the NCC's journal, Interface. Throughout his five-year reign Firnberg has repeatedly praised members' involvement and it was fitting that he returned to this theme in his farewell editorial.

"Your involvement, your willingness to participate and give your time and knowledge act both as a spur for the NCC to find solutions for the difficulties you experience and as a discipline which prevents the Centre's getting lost in blue-sky futureology," he said.

The "bedrock" of the membership was the data processing department.

Firnberg said many aspects of the NCC's "distinguished record of successes" — he singled out documentation standards, the systems analysis certificate and the Threshold school-leaver scheme — could not have happened without the NCC.

Firnberg is now managing director of Urwick Nexos, a training and consultancy organisation set up by the National Enterprise Board's office systems firm Nexos and the consultancy Urwick Orr.

Rome conference

A CONFERENCE on cross-border data flow policies is to be held by the Intergovernmental Bureau for Informatics in Rome from June 23 to 27, to explore the concerns raised at the SPIN conference in Torremolinos in 1978 about national sovereignty in international data flows. Anyone wishing to participate should contact PO Box 10253, 00144 Rome.

US graphics firm sets up UK operation

A EUROPEAN marketing and manufacturing operation for the US-based Aydin Corp is being set up in the UK by George Isaacs, former managing director of Delta Data Systems. Isaacs left Delta about two months ago because of a policy disagreement with the VDU supplier's US parent.

The operation being set up by Isaacs will represent the two divisions of Aydin Corp — Aydin Vector which builds aircraft telemetry equipment, and Aydin Controls which manufactures colour graphics display systems. The latter include the 5216 which is aimed at computer aided design and image processing applications and incorporates multiple 16-bit Intel 8086 microprocessors.

Aydin prefers to call the 5216 a display computer rather than a computer display because of its power.

The biggest application area for Aydin Controls displays is in power station monitoring and Aydin claims to have built 75% of all the colour graphics equipment installed in power stations all over the world. Aydin supplies its kit to major contractors like TRW and Westinghouse.

Some of the Aydin displays are less complex devices offering semi graphics like bar charts. Isaacs sees potential for this kit in commercial DP, especially in view of developments like IBM's introduction of colour graphics on the 3270.

Isaacs plans to house the Aydin operation at Hatfield, Herts. Initially its activities will be confined to sales and support but there are definite plans to manufacture Aydin products at Hatfield for Europe.

Isaacs said that he left Delta because he had similar ambitions to expand Delta's activities in the UK, but they were not shared by Delta's US parent. Delta's UK subsidiary controls all its activities outside North America but is purely a sales and support operation.

Isaacs has been replaced at Delta by Ken Rumsey who was formerly the company's international marketing manager.

PAGE SIX for programmers and analysts

by Judith Morris

If only computers could work the same hours as humans

Obtaining the data from the clocking-in unit of a flexible hours system.

PRDGRAMMING is one of those joba which most people consider tn be of the nine to five variety. Programmers themselves will be quick to point out that computers do not always pick set times to go down, and that errors and system failures can occur at the most unsocial hour.

It is because of this ospect of the job that a company called Automatic Revenue Controls has put forward the idea of flexible working hours for programmers, using Plantime, its flexible hours control system.

Peter Russell, marketing director of the company, pointed out that 28% of companies surveyed recently by the Institute of Administrative Management had some form of flexible working hours.

"A similar survey carried out at the same time showed that in 1978 some 200,000 people went on to flexible working hours for the first time, and the rate is increasing," he said. He went on to explain why computer programmers and systems analysts are among the white collar workers who stand to gain most from flexible hours.

"Most silly mistakes in preparation work occur, it is thought, either just after arrival, or in the morning when still flustered from a difficult rush hour journey, or during the evening rush to get something finished before going home."

Schemes vary in different companies using the system, but most allow people to arrive between 8 and 10am and leave between 4 and 6pm. The period from 10 to 4 is known aa the core time and staff must be in the office. Flexibility can also be incorporated into the timing and length of lunch breaks.

The limitations of such a scheme are obvious, the main one being that work interests come first. As Russell points out, "If there is a peak to be pushed over, or a deadline to be met, then that is the important consideration."

Also some form of control would need to be implemented. A set period is chosen, usually four-week, and at the end of this people must have completed their normal contracted hours of work.

ARC's solution is the use of the Plantime system which incorporates electronic terminala at the entrances which receive individually coded keys or ID cards from people as they arrive and leave.

Russell explained, "When people check in, the system starts adding time to the memory record. When they leave it stops. If a person arrives or leaves during the 'core time' that fact is displayed to them next time they use the terminal. Other mishaps are similarly pointed out depending on what the organisation wants programmed into the syatem."

This all sounds very well, but what immediately springs to mind is that programmers and analysts may not take kindly to clocking in and out, which to many people is still associated with factory workers and seems to imply a lack of trust to which professionals may take exception. It is easy to imagine the situation arising where some of the more arrogant or blasé programmers may continuously ignore the offensive little terminal and continue to come and go as they please.

Also many programmers work long hours either through necessity or their own interest and would probably continue to do so without taking time in lieu or even thinking about it.

Working flexible hours within a framework of 8am till 6pm still does not alter the fact that computers do not work human houra and there will still be difficulties which require manpower outside even a flexible day. Consequently, come the end of the month there will be people with perhaps weeks of time in lieu to be taken, and as these are the ones who probably always work late, it would be impractical for them to take it in full.

Russell points out that overtime goes down when a flexible system is introduced. "People like programmers who are paid, dare we say, adequately for their services, usually prefer time off in lieu to be with their family instead of taking highly taxed overtime payments. The company still gets a full amount of work from them but their time off can be taken in slacker periods."

Whether this actually happens is debatable, although ARC is convinced it does. It quotes Wimpey's computer centre where the workers have discovered that a flexible day makes more computer time available to programmers who would otherwise be clashing with each other in the queue.

Page Six will be interested to hear from programmers or employers who have such a system at their installation, or from others who prefer the way they operate already. Flexible working times can vary very much from company to company and the scheme chosen has to depend on common co-operation and understanding.

From experience, employers will know and programmers will appreciate that agreement has to be reached on any kind of organised control, which can be resented if it is not what everybody wants. They will also know that is is not always the hours worked which present the crux of the matter, but the amount of work done. Should people be rewarded with time off in lieu simply because they are slower workers than their colleagues?

Automatic Revenue Controls has published a booklet on flexible working hours. It is priced £1.60 but Computer Weekly readers can obtain it at a reduced price from Automatic Revenue Controls, Shakespeare Industrial Estate, Watford, Herts.

Puzzler

EVERY missing figure in this "skeleton" square root sum can be deduced, using only the single-digit clue given in the last line.

Note that the usual "working column" on the left, where one doubles each quotient and adds an appropriate figure to aid calculation, has been omitted.

See page 61 for solution.

```
    x   x   x   x
  √xx  xx  xx  xx
    x
    x  xx
       xx
       xx  xx
       xx  xx
        x  xx  xx
        x  xx  3x
        0  00  00
```


SOFTWARE FILE

by Claire Gooding

Codasyl tidies up Cobol procedures

SOME useful changes to Cobol which have been implemented by Codasyl were recently examined by the British Computer Society's user group on the language.

The changes are mostly seen as an effort to tidy up procedures prior to the publication of Ansi's projected new standard within the next two years but to a degree they reflect that authority's attitude to the continuing development of Cpbol.

Those aimed at improving the structuring of Cobol programs include an extension of the PERFDRM construction. Two new forms of EXIT have been added to the END PERFDRM statement, which together should streamline structured use of Cobol.

Figure 2.

```
IF R-COUNT = 0 OR
  R-SUM/R-COUNT < 100 . . .
```

By the use of the new EXIT PERFDRM and EXIT TD TEST OF PERFDRM, devotees of structured programming need no longer waste time and code to avoid GDTD's (see Figure 1) Ansi has not yet decided whether or not to implement this usage.

Another change designed to make programs easier to follow is the order in which evaluation takes place in a complex test. Statements such as that in Figure 2 will now work, and prevent the attempt to divide by zero.

Codasyl has also tried to eradicate some features of Cobol which frequently cause errors, particularly among less experienced programmers.

Ansi, however, has rejected the proposal that the word TO might be allowed in an ADD statement such as ADD A TO B GIVING C, and also turned down the idea of abandoning the mandatory column margins.

Codasyl had put forward "free form Cobol" as a possibility, ignoring margins and area A and B with a few minor exceptions concerning indicators usually appearing in column seven, but Ansi is not yet ready to abandon this discipline.

The new rule that REDFINES need longer define the largest area first has been accepted by Ansi.

Codasyl has also attempted to rationalise minor features of the language. The term "subscripting" now includes indexing, and although Ansi accetped "Index name + or — integer" as a subscript, arithmetic expressions as subscripts were rejected. Ansi also rejected the idea of continuing literals by a hyphen after the incomplete portion.

Among those Codasyl proposals accepted by Ansi are the implementation of CALL for non-Cobol routines and the provision of symbolic characters where a control character is needed which cannot be entered in the program source, by statements like SYMBOLIC CHARACTER CR IS 13.

Codasyl has also approved some additions to the language, all of which are still under consideration by Ansi, but are likely to be rejected.

These are

- WRITE is extended to allow writing from a literal as in WRITE FROM "COMPANY CONFIDENTIAL", and the ADVANCING clause of WRITE will allow backward positioning where hardware devices permit this.
- The additional usages BINARY and PACKED-DECIMAL are provided, increasing portability by reducing the need to use the various forms of CDMP.
- The CALL verb may now be written USING a non-numeric literal.

Figure 1.

```
PERFORM VARYING R-C FROM 1 TO 10
   IF R-TYPE (R-C) = 99 EXIT PERFORM.
   IF R-TYPE (R-C) = 1
      ADD R-VAL (R-C) TO R-TOT GIVING R-TOT
      EXIT TO TEST OF PERFORM. (goes to last perform statement)
   IF R-TYPE (R-C) = 2
      SUBTRACT R-VAL (R-C) FROM R-TOT GIVING R-TOT.
END PERFORM.
```

APL firm taken over

THE Scientific Time Sharing Corp of Betheseda, Maryland, has acquired the assets of Applied Computer Science Research Corp of California for $650,000. ACSRC develops software systems for the programming language APL, widely used for management and planning applications.

STSC hopes to extend APL to transaction processing and generally expand the market for the language, making use of ACSRC experience in efficient use of memory. At prasent STSC provides APL software only for large-scale syatems auch as IBM 370 and compatible machines, and the 4300 series.

UK arm of GSi formed

THE UK subsidiary of the giant French-owned services group Générale de Service Informatique has formed a new arm to be known as GSI Systems, to deal with consultancy and software services in this country.

The services division of GSI International has been operating in France and West Germany for several years and the new section will offer international support although its primary focus is on the UK marketplace.

Berlei in swim of VME/K development

THE bra and swimwear manufacturer Berlei is to be one of the guinea-pigs for VME/KSV16, the current development version of ICL's operating system VME/K. The version is the forerunner of the first fully developed release of VME/K planned for 1980, and at present is on controlled release to four customers including Berlei.

For Berlei this is part of a strategy to expand and develop its communications systems over the next five years, replacing existing online and batch systems with online, real time, VME/K systems.

To allow concurrent development of the new methods Berlei has just acquired a second ICL 2950 to replace its 1902T. Eighteen months ago the company was the first user of the 2950 (CW, December 1977), which was bought in order to establish a teleprocessing network linking its seven factories. Berlei said that the second processor was purchased "to provide a fully resilient communications environment under DME".

Included in the online communications network which embraces remote factories as well as head offices is the recent addition of a 7501 processor with two VDUs running online using a dial-up line from Paris.

'True word processing' on DEC LSI-11 micro systems

A PACKAGE called Wordsmith has been introduced by Karlin with the aim of making "true word processors" of Digital Equipment LSI-11 Olympic microsystems with NET-11 operating systema.

The product comprises a screen editor and a formatter program. It enables up to four terminals to work at once, and the formatter can be run as a detached job while the VDU can be used for other work including text editing. Wordsmith can also run concurrently with other Dibol programs under NET-11. Costs range from £750 to £1,250.

OP SPOT

by Bernard Allen

Here's your chance—what do you think of your ops manager?

ASK any number of operators what they think of their operations manager and you can be sure that some will describe him as the best thing since sliced bread while others will reply in terms unprintable on a page such as this.

Those in favour will say that they like him because he does a good job — he's come up through the ranks and so fully appreciates the part they play in the running of the installation.

But you are much more likely to hear them criticise the manager, and strongly too — saying that he doesn't listen to their viewpoint and isn't interested, anyway.

So contention between operators and operations managers is not uncommon.

Contention between operations managers is much rarer, although it does happen. It is particularly surprising, and refreshing, when two managers disagree on matters such as the value and efficiency of the typical operations manager.

And that's exactly what we have this week.

At the end of last year, Ron Linton, operations controller at Manchester Polytechnic, sang the praises of ops managers, describing the majority as essentially hardworking individuals who are deeply concerned about the welfare of their operators.

Referring to his involvement with other managers through the ICL George 2 User Group, Linton said, "Most managers I know think the sun shines out of their operators" and that "A few managers give others a bad name" in the computer industry.

Praise indeed. However, it is for comments such as those that Ron Linton comes in for a sharp rap from Lance Beste, operations manager at Datasun UK.

He commeats, "It must be assumed from his bold statement that Mr Linton has been in the unusual situation of having worked with a multitude of operations managers, presuming, of course, that his statement is totally factual.

"If that is not the case, then Mr Linton is yet another member of today's society that makes rash commeats out of context.

"Surely facts are available only if one has carried out a nationwide questionnaire. Mr Linton does not mention that he has done this, so I gather that his remarks may be ignored."

Now come on, Mr Beste. Ron Linton was expressing an opinion and did mention that he has come into contact with a lot of managers through his involvement with the ICL George 2 User Group.

"Novel method of reducing head count isn't it?"

Beste stresses that in computer operations, as in many other walks of life, there are both good and bad in staff and management. "Speaking on my own behalf, I can only state that wherever I have worked the relationship between myself and staff of all levels has been very varied."

Referring to those who have come up through the ranks of operations, he commeats, "These managers understaad the problems and work satisfaction of their operators and so ensure good relations between management and staff."

I have also dealt with quite a few operations managers, formerly as an operator and more recently as a Computer Weekly writer.

I must agree with Lance Beste when he says that the operations fraternity has both good and bad members.

On the one hand are those who adopt the "Oh, they're only operators" philosophy, while on the other are the ones who will stop at almost nothing to get the best for their operators.

As I see it, it's very easy to be a bad operations manager and rather difficult to make a good job of the position.

At the smaller installation he is likely to be called upon at all hours to deal with matters ranging from the trivia of a broken coffee machine to complicated hardware and software problems.

One such manager — a particularly conscientious individual — was ordered to spend two weeks at home in peace and quiet because he was suffering from nervous exhaustion.

By contrast, another operations manager — or ex-operations manager, to be precise — would promise his operators the world while under the influence of a few beers, only to suffer from a convenient loss of memory and go back to his bad old ways the very next day. His "bad old ways" included allowing users to enter the computer room and tell the operators where and when output was to be printed.

A good manager is worth his weight in gold. Generally speaking, attitudes come from the man at the top and are passed down through the ranks to the rawest recruit at the installation.

Personally I have no time for the sort of stupid, mindless rules and regulations that inhibit operations staff from using their drive and initiative.

I advocate the sort of operations management that says, "Look, we've got to have these standards but they are a means to an end and not an end in themselves."

That sort of approach, coupled with salary incentives, training schemes and good career prospects will, in my view, get the best out of operations staff. Treat the operators fairly and the majority will respond in a positive manner to the benefit of the entire installation.

I am concerned about the operators who know their stuff and use it day in and day out to ensure that the work is processed with speed and efficiency so that deadlines are met.

It is with these latter persons in mind that I believe staff appraisals should be carried out at least once every six months.

● As with all other matters relating to operations, Op Spot would like to hear what you think about your operations manager. Is he good, bad or just indifferent? Does he take the trouble to find out who the best operators are, or is he content just so long as the work gets done? And there is no need for operations managers to be shy about putting views. If you feel that your operators aren't up to scratch, who is to blame? I may not always agree with your views, but I'm always willing to present them.

Operators often complain that nobody listens to their point of view. Well, Op Spot is listening and Bernard Allen would like to hear your opinions and ideas on all matters relating to computer operations. Your letters should be sent to Op Spot, Computer Weekly, Dorset House, Stamford Street, London SE1.

Telephone calls are equally welcome and Bernard can be contacted directly on 01-261 8035.

A matter of life and death at work

HEALTH and safety are worthy of consideration throughout the installation and not just in the computer room area.

Office areas like job control and data control are sometimes made hazardous by a lack of storage facilities which result in output listings being piled on floors, desks and other inappropriate places.

According to Supervisory Management Training, of London, about a dozen people suffer fatal accidents in the office each year, and about another 5,000 receive injuries resulting in at least three days off work.

To help prevent such accidents the company has come up with an office safety course which, it claims, does not call for experienced lecturers in the field.

The course is based on film slides and audio cassettes, which are supplemented by a trainer's guide and two work books — one for supervisors and another for staff.

The whole package costs £95 + VAT and is available from Supervisory Management Training Ltd, 21 Green Lane, London SE20 7JA. Tel: 01-778 1681.

COMMUNICATIONS NEWS

Viewdata chip sets production build-up

VIEWDATA chip sets have reached an advanced stage in the development process at General Instrument Microelectronics' plant in Glenrothes, Fife, in preparation for volume production early next year.

Samples for customers likely to give large orders have been produced over the last three months.

Consumer products manager David Letheren said that the company's European division, with its design and production plant in Glenrothes, was well established in telecommunications products because Europe was more open market for them than the US where the market was dominated by large telephone companies.

The viewdata chip set consists of the AY 3 9710 data acquisition circuit, the AY 3 9720 video generator circuit and the PIC 1650 12-bit microprocessor which is 512-word on-board read only memory mask-programmed for this application.

Prices are expected to be below £50 for the three chips in small quantities, falling to about £25 each for quantities of 1,000.

The price of the PIC 1650 processor itself, which has been in production for three years, has fallen to less than £5 and GIM says the other two will follow suit if they enjoy a high yield and a good demand.

The data acquisition chip processes data either from the telephone line via a line termination unit, modem and a universal asynchronous receiver/transmitter chip (UART) or from the broadcast teletext signal via television tuning circuitry and teletext decoder logic. It then loads it into local memory under control of the PIC processor.

The video generator circuit takes data from the selected area of local page store and converts it into suitable signals for driving a colour television tube.

The on-board character generator is programmed with different character sets according to the country of use. The UK version has the part number AY 3 9725.

The output signals can also be fed to a UHF colour modulator for use in a viewdata adapter that plugs into the aerial socket of a television. GIM's Letheren expects a big market for adapters next year.

GIM has produced two printed circuit boards to enable potential large scale buyers to evaluate the chip set, one for viewdata alone and one for teletext as well.

These may be produced for normal commercial sale by Dexter Electronics of Stevenage, Herts, as printed circuit board production is outside GIM's usual area of activity.

The combined board holds the three-chip set plus auto dialler, line termination and model unit, teletext decoder and local storage implemented with conventional components.

● Although mass production of viewdata terminals appears imminent, the Dutch PTT is taking no chances on leaving it to the natural inclinations of the consumer: it has demanded that information providers on its viewdata service arrange for one terminal to be connected for every 50 pages that they rent on the PTT database.

Helping to keep thieves at bay

Our pictures show how easy the Post Office's ASC Alarms system is to operate. It is also simple to install because it shares an ordinary telephone line, and an alarm message with a data rate of 300 bps can even be sent while a conversation is being held over the line.

Any automatic alarm system that meets Post Office attachment standards can be connected instead of the push button.

The service has been on trial in the Norwich area and its introduction elsewhere in the country will depend on demand.

The subscriber's device is linked to a purpose built processor in the local telephone exchange which polls the lines checking for an alarm signal or a line fault. Either event causes a message to be sent to a central exchange processor enabling details of the alarm to be supplied to the police or fire service headquarters. The maximum delay is four seconds and line faults lasting less than half a second are ignored.

● The larger picture shows how, at the first sign of trouble, a "panic-button" close to a till or cashier at the customer's premises can be pressed. Brief details of the emergency are transmitted to the police within five seconds over ordinary telephone lines. Inset, a police officer, alerted by the ASC system, reads details of an emergency on her control room terminal.

Racal-Milgo drops Series 4000 cluster terminal system in the States

IN the US Racal-Milgo has dropped one of its terminal lines, the Series 4000 cluster terminal system, launched in 1978 as an IBM 3275 replacement (CW, June 15, 1978).

As well as replacing the IBM-3275, the 4000 was also available with "Univac UTS 400 and Honeywell VIP-7700 emulation, but it has not proved a sufficient success, and was killed off quickly.

However, Racal-Milgo is firmly committed to the display terminal business in the US, and expects it to expand 25% in the current year.

Dennis Daniels has left Racal-Milgo after 11 days as vice president and general manager. Racal says that he left because the appointment "didn't work out".

● Racal has bought 66% of New York security systems company Vikonics for $900,000 with an option to buy the rest of the shares later. The company forecasts sales of $2 million in the current year.

PEOPLE and EVENTS

In a management game which involved controlling three imaginary companies and making decisions on production, marketing and research, the team of sixth formers from Wyggeston and Queen Elizabeth College won an exciting final and the British Enkalon Trophy.

Twenty-seven teams entered the competition this year and in the final the winning team defeated teams from the City of Leicester School and Rowlins College, Quorn.

The victors are seen here receiving their trophy, a mounted computer circuit board, from T. H. Harris, financial controller of British Enkalon.

As an added bonus, the team will also be sponsored by ICL for the Financial Times annual national competition.

Excitement at ICL chess tournament

HASTINGS has seen the influx of 400 International chess players to take part in the 55th annual Hastings International Chess Congress, sponsored for the second year by ICL.

The contest began on December 28 and continues until January 14. Excitement is mounting a great deal of attention focussing on the ICL Grandmaster Tournament with ten Grandmasters, four International masters and two untitled players competing for a first prize of £1,000. Nigel Short, 14, of Bolton was in third place in the Premier tournament after his victory over the Israeli master, Israel Zilber.

Nigel is currently awaiting confirmation of his International Master norm attained at Chester in August.

The Congress was officially opened by Patrick Moore and the prizes will be presented by Peter Ellis, deputy managing director of ICL.

The last round of the ICL Grandmaster Tournament will take place in the White Rock Pavilion, Hastings, on Monday, January 14.

Gilbert Dowse has joined Computerplan where he will be senior consultant with special responsibility for marketing and development of services to the publishing industry. Since 1967 he has been with the Gordon and Gotch Computer Centre.

Carol Duncan has become UK customer training manager for Data General. Her experience in computer education includes working in the computer division of the Bank of Credit and Commerce International.

Tannatt Nash is Geest general manager

FOUNDER of Data Logic, Brian Tannatt Nash has become the general manager of Geest Micro Systems, part of the data products division of Geest Computer Services.

Data Logic was formed in 1967 after Tannatt Nash left SPL where he was a shareholder director. As founder and chief executive, he established Data Logic companies in Sweden, Norway, Denmark and Switzerland.

It was politics that drew Tannatt Nash temporarily away from computers in 1973, when he became the Liberal candidate for Hereford and fought both 1974 elections.

After the elections, he returned to the industry and took up various senior management positions culminating in his appointment as general manager of the professional services division of ICL in South Africa.

Speaking of his new appointment, Tannatt Nash said, "I have predicted and am now convinced that with the right environment Micro Systems will open up countless new opportunities for both business and domestic use."

Maurice Morks has been appointed managing director of Granada group services, responsible to the group chairman, for Granada's corporate development and data processing. He has been planning director of the National Enterprise Board for the past three years. He is also chairman and board member of two NEB subsidiaries and has served on the board of the British Airports Authority as a non-executive director for the last five years. Before joining the NEB he was with Unilever where he was chief accountant and commercial administrator.

Nick Murzell has become a sales executive with RTZCS after leaving Intel, where he was engaged in sales and marketing support. Joining the company from Quinton Hazell, **Tim Robins** has become a systems consultant in customer support with RTZCS and **Neil Warden** has become manager of time sharing sales. Previously he worked for Computer Sciences and GSI.

David Goodey has joined the sales team of Darley Business Forms.

Walter Paterson has been appointed to the board of Marconi Avionics. He is now general manager of the Basildon establishment of the company for which he continues to have responsibility, and also for the Airadio Spares and Service unit, at Stanmore. He was previously joint general manager of the company, which he joined in 1960.

Jerry Thompson has become design and development manager for Wescode Equipment, the manufacturers of microprocessor controlled cheque personalisation and encoding equipment. Prior to this he worked for Shade (Computer Services) in the development of specialised hardware and software systems.

Jeremy Crame has been appointed sales manager for the south-eastern region with Atlantic Computer Leasing.

John Woods has been appointed president and chief executive officer of MCM Computers. He was previously vice-president of marketing with Consolidated Computer Inc.

DIARY

JANUARY 16-17
IBM CUA Series I group. De Vere Hotel, Coventry. Tel: 01-551 1643.
IBM CUA Local Authorities group. County Hall, Cwmbran. Tel: 01-551 1643.

JANUARY 22
British Chapter, ACM. Conversation on Parallel Processing. Dennis Parkinson on Chinese Army Approach to Computing. BCS headquarters, 13 Mansfield Street, London, 18.30.

JANUARY 24
Data Protection. BCS Merseyside branch. Department of Science Lecture Theatre, Liverpool University, Brownlow Hill, Liverpool. 18.00

JANUARY 24-25
IBM CUA programming group. Holiday Inn, Liverpool. Tel: 01-551 1643.

FEBRUARY 4
Meeting. BCS Fortran specialist group. Heriot-Watt University, Edinburgh. 10.45. Tel: 0533 554465 ext 165.
The use of microcomputers in electricity distribution. BCS East Anglia branch. Russell Road, Ipswich. 19.00
Visit to Open University. BCS Bedfordshire branch. Milton Keynes. Apply via secretary. Tel: 01-637 0471.

FEBRUARY 7
Visit to Lloyds. BCS Kent branch. Chatham. 19.30.
The future of BCS and presidential visit. BCS Chester and North Wales branch. Half-Way House, Connah's Quay, Clwyd. 10.30.

FEBRUARY 13
Technical directions. BCS Bristol branch. St Vincent Rocks Hotel, Clifton, Bristol. 19.15.

Liveware File by Don

Tannatt Nash — Lewis — Lock — Fryer

New division at Hoskyns

A NEW consultancy division has been formed at Hoskyns which will deal with the problems involving communication networks, database management systems and techniques, and microcomputers and their role in supporting business in the 1980's.

David Menzies has been appointed to lead the division. He has been with the Hoskyns group for 10 years and has specialised in the technical aspects of computing.

"Computer technology has been developing at a tremendous pace and there are very few real experts around," he said. "We need to reserve them to solve the really difficult problems."

Alan Clarke has been appointed manager of the south-west branch for Honeywell's general systems division. Most recently he was divisional sales manager for the south-west.

John Woods, Prime Computer's first "million dollar salesman", has now been promoted to branch manager for London West. He has been with the company for two years as a sales executive and before that was selling for GT and E. He takes over from David Derbyshire, who has become district manager of the North and Midlands area for Prime.

Roy Luckett has been appointed senior territory manager for British Rail branch with Redifon Computers. He joined the company in 1978 as territory manager for the Southern branch.

Harry Lewis has become deputy managing director of Rexall, the British word processing company. He joined the company two and a half years ago as administration manager and is currently company secretary and commercial director.

Phil Fryer has joined Piller (UK) as senior sales engineer. He was formerly regional sales manager with Transipack.

Colin Lock has become engineer with Dataproducts. He joins the company from ... Engineering where he was executive for London and south-east. Formerly a ... liaison engineer, Phil Mo... transferred to sales with the company.

John Hardy has become sales executive with ... tems within the company's information systems international division. He was previously sales consultant with ... and will be based at the Southern branch office.

OBITUARY

Eugene C. Cronin

PRESIDENT of Documation World Trade Corp, Eugene Cronin, has died aged ... had been with the company seven years, joining in ... controller.

Cronin had held various ... for financial management positions with Digital Equipment prior to joining Documation and since 1972 had served as vice-president of administration. He became vice-president of European operations in ...

He was appointed president of Documation in 1978.

Taming the business forms jungle

by Jane Bodin

Little attempt was made until recently to settle on standard sizes for continuous stationery, and it is estimated that about 200 different sizes are currently being produced. The Continuous Business Forms Manufacturers section of the British Printing Industries Federation proposed a standard of eight sizes in 1978, and now Jane Bodin reports on the progress made in implementing it, and on the benefits to be reaped from standardisation.

TO CUT back the jungle of 200 different sizes of business forms to a range of eight standard widths, is perhaps an almost unobtainable target. But that is what the Continuous Business Forms Manufacturers section of the British Printing Industries Federation has proposed, and some progress, albeit slow, has been made.

There are 60 companies in the forms manufacturers section, responsible for 90% of the output of continuous stationery in the UK. Of this, 40% is listing paper, the remainder being "bespoke" or custom ordered forms.

Five or six large companies produce 80% of this listing paper and a look at these reflects how far the recommendations are being put into effect.

Roneo Vickers, one of the big three, has just announced that in future its stock sizes will comprise the eight recommended sizes, with other widths available only on special request.

Arnold Haase, sales director of Roneo Vickers Business Forms, commented, "Recognising the obvious benefits to both manufacturers and customers, we have decided to implement immediately the standardisation of size.

"After consultation with most of our leading customers, it has become apparent that the size difference involved will have no significant effect on programming, filing or storage, and the changes have been readily accepted by all concerned.

"We will, of course, supply the other sizes where specifically requested and where we are unable to convince the customer of the benefits available from the new sizes.

"The sooner our colleagues in the industry follow suit the sooner we will all enjoy a better service from our paper suppliers and make a worthwhile contribution to holding down costs — a vital factor in these days of escalating prices."

It is a courageous step to take in this highly competitive industry. The listing paper market is in decline through the use of VDUs, laser printers and Honeywell paper printers — hardly ideal conditions in which to introduce change.

Nevertheless, change had to come. Users of computer stationery, even before standardisation, often made life more difficult than was necessary by taking no heed of sizes, but instead designing layouts and ordering a printed sheet to fit them.

Too often in the forms business, the design of a piece of stationery has gone too far for easy adaption before it is discovered that the dimensions are unsuitable for the printing machine or its potential for colour printing and in-line finishing have not been fully exploited.

The eight widths introduced are: 180, 210, 250, 280, 345, 370, 400 and 450 mm. These were selected by a technical subcommittee of the CBFM which spent many months discussing how customers' needs could be best met by a smaller range of widths, working in close co-operation with the Business Equipment Trade Association and the British Paper and Board Industry Federation to ensure that the sizes chosen satisfied as far as possible all relevant criteria and made wide adoption possible.

The reasoning behind each chosen width was chosen is as follows:

- 180 mm — same as ISO 2784; will trim to A5 width
- 210 mm — meets the need of a popular width in the UK; untrimmed it is A4 width
- 250 mm — same as ISO 2784; will trim to A4 width
- 280 mm — meets the need of a popular width in the UK, untrimmed it is close to the longer side of A4
- 345 mm — differs by only 5 mm from ISO 2784 size of 340 mm; meets need of width for IBM computer console printer
- 370 mm — differs by only 5 mm from ISO 2784 size of 375 mm; relates closely to the popular size of 14½ ins.
- 400 mm — same as ISO 2784
- 450 mm — same as ISO 2784

The introduction of standard widths will, if widely adopted, avoid delays and costs through the extra production time and unnecessary waste of materials and manpower incurred in constantly changing from one size to another during form manufacture. Producers cannot stock every width, and delays are experienced while a desired width of reel is being obtained from the paper mill or merchant. If a job is urgently required a wider reel may have to be used and the excess trimmed off.

It is estimated that the impact of the widespread adoption of standard widths could be in the region of annual savings of millions of pounds. However, it is very much a "chicken and egg" situation — the economies will not become available before a large number of users have switched, enabling standardisation right through printing works back to paper merchants and mills.

When forms are to be redesigned, it is good policy to co-opt a good printer with experience of computers. A person like this can really save money, as he understands both the requirements of his customer and the capability of his equipment. Indeed, it is often easier and cheaper to design the whole form right from the beginning than to try to produce a format which has been drawn up with no understanding of printing techniques.

The benefits of standardisation will come as its acceptance spreads, and the printer will be happy to assist in every way possible to speed this process.

On the face of it, it is a buyer's market. The customer can ask for what he wants and get it, if not from one supplier then from others clamouring for his business and many are reluctant to consider a change the benefits of which are not immediately apparent.

However, as with many other service-type industries, there are inherent dangers in exploiting this kind of market.

In 1975 there was a general UK recession followed by overcapacity in the business forms industry. This resulted in price cutting with margins squeezed, despite the willingness of the industry to invest in new machinery and take advantage of modern technology — and several quite healthy companies went out of business.

For several years now printers have held their prices steady against a background of inflation and only last year were there finally general price rises of some 15% due to factors such as increased wages and higher paper prices. Although prices have hardened, most companies will still barely recover their increased overheads.

Yet it is not in the customer's long-term interests for too many companies to be squeezed out of the market, leaving only a few large concerns or in-plant installations to fill the gap.

Standardisation won't offer an immediate benefit. However, it will contain future price rises and it is to be hoped that the users of these standard widths (rather than those who cling to their special sizes) will feel the greatest benefit.

Harry Blomfield, marketing director of Moore Paragon UK, which produces some 25% of all UK continuous stationery and 30% of the listing market, feels that it is as important to push for the standardisation of custom continuous as for listing.

He reports a small but significant move in that direction at the company's Sunderland plant, where about 45%-50% of orders are in one of the firm's eight "preferred metric widths" which are in line with those agreed by the rest of the industry. Yet three years ago, a three-month check on one press showed 92 different widths being manufactured!

The continuous stationery industry is gearing itself to cope with larger numbers of small runs of 5,000 forms or less to accommodate the small business computer. Here standardisation could offer big savings.

Moore Paragon also has interests in Europe, which went metric some years ago for both paper sizes and computer stationery. Today most businesses are familiar with A4 letterheads and related stationery, yet this took years to introduce into the UK and is still by no means in universal use.

Colin Cripps is manager of the continuous stationery department of John Dickinson Stationery, Apsley. Until recently he was manager of the envelope department and his experience shows that it has taken five years for the standardisation of envelope sizes to have a "reasonable impact."

He feels it will take at least this time for the same thing to happen with business forms.

From his experience it is the buyers, particular of very large groups, who have to make the first move, as happened with general stationery.

But when standardisation was being discussed by the Continuous Business Forms Manufacturers section with a large computer user group, the advice received from the users was that it was essential that the printing industry took a positive attitude to broadcasting the benefits before too many minor problems were put in the way.

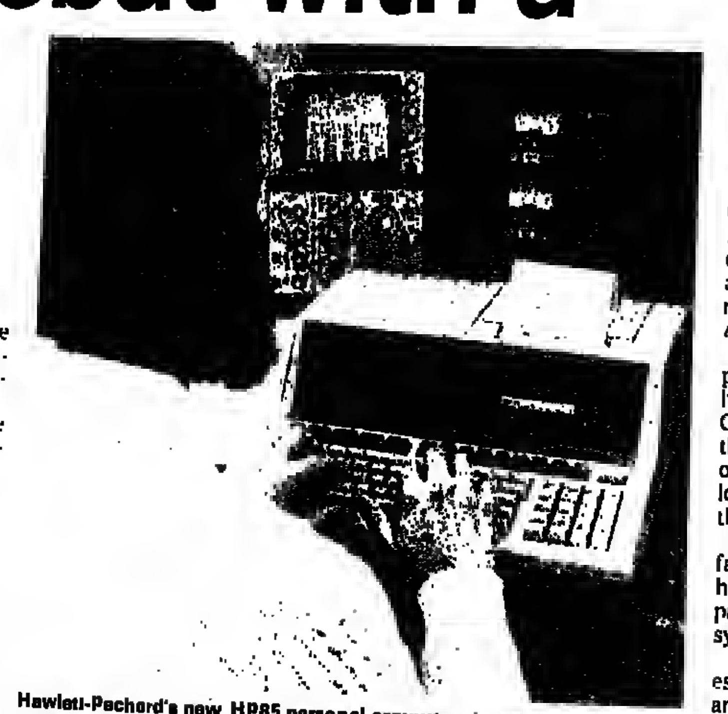
Standardisation, like metrication, will come. But its range of progress will depend on the ability of the continuous business forms industry to educate its customers and its willingness to take co-ordinated action.

Customers have nothing to lose by co-operation except additional price rises. In this most modern of industries, it would surely be a strange irony if logical developments were held back through conservatism.

MICRO NEWS

by Martin Banks

'Personal' debut with a difference by H-P



Hawlett-Pachard's new HP85 personal computer, introduced last week, sets the company apart from others in the field in its approach to the market. With a small 5in screen and thermal printer built in, it will sell for nearly £2,000. First sales targets are the scientific and technical professionals.

THE long-awaited entry of Hewlett-Packard's Capricorn personal computer system has taken place, with the introduction last week of the HP85. It shows that there is a significant difference between the company's own conception of what represents a personal computer, and that shown by the majority of the industry.

At £1,950, the new system is priced well above what is normal for equipment in this field though, according to John Golding, H-P's UK Personal Computation products manager, it is being aimed specifically at the professional and technical market where he feels it will have good sales potential.

The HP85 is based on an 8-bit NMOS processor produced by Hewlett-Packard, and already in use in other desk top calculators. Golding emphasises the portability of the system, which at 16 × 18 × 8 inches in size and a weight of 20lbs, includes an integral 5-inch video display and a thermal printer. This makes it one of the few totally integrated computer systems available, and the company sees this as a unique selling point.

With only 16K-bytes of RAM as standard, of which only 14.5K-bytes is available to the user, it has sufficient memory capacity for the scientific and technical professional markets. A memory upgrade of an additional 16K-bytes, which come in the standard Hewlett-Packard form of a plug-in "cartridge," is also available.

Secondary storage is in the form of another Hewlett-Packard standard item, a 200K-byte tape cartridge drive.

To provide compatibility with other systems in the H-P large calculator and small computer lines, the new system uses a 32K-byte Basic language that is common to several other systems in the company's range. Many programs written in this language on other H-P systems can be loaded directly into the HP85, though there is a translator package available to optimise the transfer.

At present there are no peripherals available for use with the computer, primarily because of the lack of suitable interface cards. These should be ready within the next two to three months, at about £200 each. It will then be possible to attach a graph plotter, matrix printer and a variety of floppy disc drives to the system, and the company will start looking actively at the small business market.

This is liable to be some way down the line, however, for the company tacitly admits that it will be unable to produce enough systems to meet the demand from the scientific and technical marketplace, certainly for the coming year. Production limitations are liable to restrict sales to the hundreds of units in this country during 1980.

The company also admits that this is one reason why the price of the system, which is largely based on hardware subsystems already developed and in use with other H-P products, is being set so high.

The small business market may prove a tough nut to crack for the company with the HP85, for with the matrix printer (£2,000), floppy disc drive (circa £500-700 depending on type) and relevant interface cards, a system with under 15K-bytes of memory will probably cost about £5,000.

This is without applications software, none of which is yet available for the business area. Most of this, H-P anticipates, will come from its dealer network. At present, 16 companies have been signed up.

A number of potential systems configurations are already available that would seem to exceed the capabilities of the HP85 in this area, with software packages to complement them, at prices below £5,000.

Golding is sure that customers will buy the new system, however, though he does not feel it will make a dent in the market established by Tandy, Apple and Commodore, among others.

International Apple Core set up in US as 'parent' for local groups

OWNERS and users of the Apple II microcomputer now have the opportunity to join together on a world basis following the formation of the International Apple Core.

This is a worldwide and independent Apple users' group that has been started in Daly City, California. The intention is for the Core to act as a "parent" organisation and data centre for local Apple user groups around the world.

It will also provide an interface with all the appropriate hardware and software companies that work with the Apple system.

One of the first facilities to be established will be a software and vendor services library. All local user groups that join the Core will have access to this, and it is hoped that they will also contribute software and information to it.

Three types of membership are being offered by the Core. The prime one is User Group membership, which is open to all Apple user groups worldwide. The second, Associate membership, will be open to non-profit making institutions, while the third, Sponsoring, will be open to commercial businesses.

Further information about the International Apple Core can be obtained by writing to the pro tem president, Val Golding, at PO Box 976, Daly City, California 94017, US.

Instant programs for the Nascom 1 kit

AN unusual piece of collaboration between a book publisher and a microcomputer manufacturer has resulted in Z80 Instant Programs,* a book written by lecturer Johnny Hopton specifically for the Nascom 1 kit.

Officially approved by Nascom for the kit, the book lists and explains nearly 40 machine code routines ranging from simple delays, through to graphics, control of external devices, music, word processing and games.

The author, a lecturer at Burton-on-Trent Technical College, was prompted to write the book because the majority of Nascom builders need ready access to software, first to test out the performance of the system, and then to learn about the techniques of programming.

Complementing the book, a cassette of the programs is also available for an additional £10.

Though written primarily for the Nascom kit, many of the programs will run on other Z80-based computers, and the book includes an appendix of subroutines to assist in this.

* Z80 Instant Programs, 190pp, £7, is published by Sigma Technical Press, 23 Dippons Mill Close, Tettenhall Wood, Wolverhampton 8HH.

Southwest price cut

A PRICE cut of about 30% has been made by Southwest Technical Products on its computer system based on the Motorola 6800 microprocessor. This is because the company now has available a system using the later and more advanced processor from Motorola, the 6809.

The system on offer comes with 40K-bytes of memory, a video terminal and twin mini-floppies. The price is down from £2,200 to £1,408.

FCC asked to extend deadline on electromagnetic interference

THE American Computer and Business Equipment Manufacturers Association wants the Federal Communications Commission to extend its deadline on enforcement of a new regulation which sets limits on electromagnetic interference from commercial computers and other electronic office equipment, writes Hesh Wiener.

CBEMA, which initially proposed the regulation, now claims that the July 1, 1980, deadline will be, in the words of a recent release, "practically impossible" to meet. A more realistic plan, CBEMA claims, would be a four-year, two-step programme which would give manufacturers time to test and verify their new electromagnetic emanation control devices.

According to the CBEMA proposal, manufacturers would, during the first two-year period, test, verify and adjust new devices still in the design stage. During the second two-year period, manufacturers would complete shipment of machines that are either being produced or are nearly developed. Thus, if redesign was necessary, that effort would not prevent manufacturers from meeting their prior sales commitments.

According to the new FCC regulation, any Class A or commercial computers which are within 30 metres of a TV or radio receiver would be required to have built-in limitation of electromagnetic interference.

Jeff Wood, a CBEMA spokesman, said that while CBEMA does not necessarily agree with the FCC's decision to set limits on electromagnetic emanations, it cannot defy the regulatory commission's decision. But it has decided to try to convince the FCC to develop a more reasonable deadline.

Earlier in the year, CBEMA proposed that the original deadline be extended seven years. Although it now proposes the shorter four-year extension, CBEMA still maintains that the seven-year extension would be, in its words, "more reasonable".

The FCC is expected to make a decision on the proposal well before the July deadline.

A four-year extension would bring the FCC more into line with work on this subject currently being undertaken by the International Special Interference Committee.

Keen office

A NEW area office in South London is being opened this month by Nottingham-based Apple dealer, Keen Computers. The office will be in Airport House, Purley Way, Croydon, but the company will continue to centre its programming and systems design efforts in its Nottingham headquarters.

40 nanosecond 16K RAM this year

BY the end of this year, Intel is expected to introduce a new 16K-bit static random access memory that has an access time of just 40 nanoseconds.

Called the 2167, it was described by the company at the International Electronic Devices conference, held in Washington DC at the end of last year. It will operate on a single 5-volt power supply and all pins will be TTL compatible.

COMPANY NEWS

W Europe market 'a shining star'

THE West European computer market will be one of the few shining stars in the immediate future for the electronics industry, according to the latest issue of the Mackintosh Yearbook*, produced by Mackintosh Consultanls.

An average annual growth rate of about 10% is expected to 1983, when the computer market, including minicomputers and peripherals, should be worth some $14,000 million. This compares with a 1978 value of $9,000 million.

For the rest of the West European electronics market, however, the yearbook suggests that the outlook is worsening. Next year especially, it predicts that the growth rate will be halved to under 7%, compared to the 1979 figure.

By 1983, the electronics market should be worth about $74,000 million.

* Mackintosh Yearbook, 136 pp. $225. Mackintosh Publications Ltd, PO Box 28, Luton, LU1 5DO.

US shows $3,000m trade surplus

IN dramatic contrast to the UK's balance of payments in computer equipment, which mostly shows a deficit, the latest overseas trade figures by the US computer industry show exports in the first nine months of 1979 outstripping imports by more than $3,000 million.

Exports of complete units of computer equipment by US firms came to $2,400 million while exports of parts reached nearly $1,500 million, a grand total of about $3,900 million.

The corresponding figures for US computer equipment imports were $380 million and $340 million making an import total for the first nine months of 1979 that was actually less than UK computer equipment imports during the first six months of last year. The UK import figure was more than £400 million, or well over $800 million.

The US figures have been published by the American Computer and Business Equipment Manufacturers Association, CBEMA.

Honeywell bid fails

HONEYWELL'S Christmas bid to get into the electronic telephone switching business has failed. Talks with Wescom Inc of Downers Grove, Illinois, were broken off almost immediately after the bid was made public. Wescom, a specialist telecommunications manufacturer with annual sales of $80 million, has instead gone to Rockwell International, a previous suitor.

$1,300 million in loans—but it doesn't satisfy IBM

ALTHOUGH it raised $1,000 million in October and another $300 million over Christmas, IBM is still seeking to borrow further capital.

The $300 million was borrowed from the Saudi Arabian Monetary Agency, which is the Middle East's equivalent of a central bank. The notes sold to the Saudis have an average life of 5½ years and carry an interest rate of 10.8%.

IBM said that the money would be used for further plant and rental equipment to meet demand.

It also confirmed that the capital raised so far, coupled with internally generated funds, would only be sufficient to meet a part of its capital requirements.

Analysts are generally bullish of an IBM boosted by borrowed money rather than dependent, as hitherto, on cash generated from its own business.

Pertec takeover

THE Triumph-Adler bid for computer peripherals and small systems manufacturer Pertec looks set to succeed. The West German office computer company now has acceptances for its $16.50-a-share offer for 86% of the shares. Completion of the deal now looks like a formality.

COMMENT

SPECULATION that Racal may shortly bid for the non-consumer interests of Decca was renewed this week, and the company's investment plans and trading in other companies' shares are a constant topic of fascinated observation by City writers.

However, since Racal does not disclose either its purchases or sales of blocks of shares, merely adhering to the Stock Exchange regulation that it announces any holding in a company once that holding exceeds 5%, knowledge of what Racal is actually doing is very incomplete. Share purchases and sales only come to light when the company whose shares are being traded makes an announcement, as Plessey did last year when Racal sold its Plessey shares.

Too often, Racal's share trading is given an unjustified significance. The company has substantial cash reserves of other companies without necessarily having any interest in launching bids for the companies in which it buys shares.

It confines itself to shares in the electrical and electronic sectors not because all these are possible bid candidates, but because it believes it understands its own industry better than does the market as a whole, and can therefore make shrewder and more profitable investments than it could in, say, property shares or stores.

There is therefore no reason to suppose that because at the last count, Racal had no shares in Plessey, the latter is not a target.

By making timely announcements of its purchases and sales, Racal could manipulate the prices of its investments in its own favour, but the company believes this would be unethical.

Much as it is nice to pick the candidates which will end up in the Racal camp, and speculation will continue as long as the company says that it plans to expand by acquisition as well as internal growth, Racal is not giving any clues.

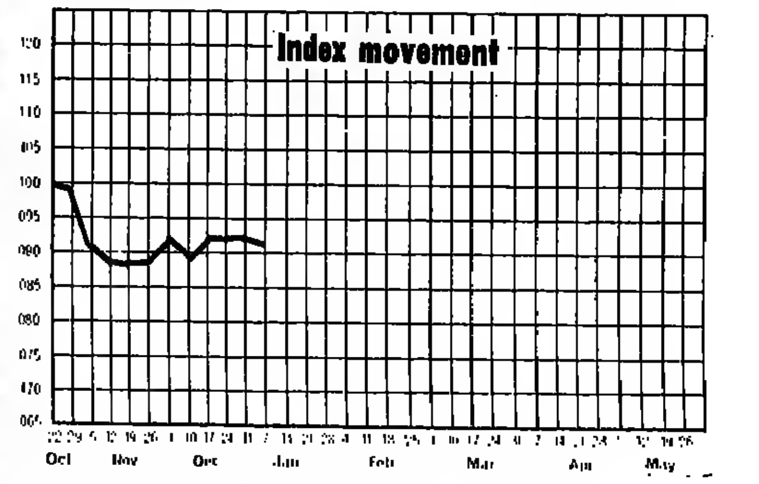
We will just have to wait and see.

CW SHARES TABLE

Date 4/1/80 Index 91.20 Change −1.00

London Stock Exchange 1979/80 High (pence)	Low	Stock	Price (pence)	Change	New York Stock Exchange 1979/80 High ($)	Low	Stock	Price ($)	Change
247	150	Applied Comp Tech	230	−18	24½	12¼	AM International	17	+2½
72	30	Brown Boveri Kent	42	—	20	14½	Ampex	20	+¼
130½	£27½	Burroughs	£34	−£2½	38¾	28¼	Automatic Data Proc	36¾	−¾
103	87	Chloride	70	−2	02	64¾	Burroughs	75¾	−4¾
170	88	Chubb	114	−3	18¾	10½	Computer Sciences	18¼	−¾
130	80	Cole	84	—	68½	31¾	Control Data	63	−1½
887	320	De La Rue	540	−8	081½	50½	Digital Equipment	06½	−1½
147	81	EMI	130	—	33½	38¾	Harris	32¾	−½
200	134	Extel	148	−4	00½	42¾	Hewlett Packard	57	−1¼
430	320	Ferranti	407	+2	84½	84	Honeywell	80½	−7½
418	317	GEC	338	+3	71	40¾	Intel	04½	−3½
100½	£30½	Honeywell	£30¾	−£2	00½	61¾	IBM	03½	−1½
£84	£28½	IBM	£28¼	−£1	30½	10½	Memorex	10½	−1¼
528	308	ICL	480	−2	65½	38	Motorola	40½	−3½
71½	38½	Kalamazoo	64	−1	30½	19½	National Semi	33	−2¼
281	148	Kode Inter	200	−8	81½	89¾	NCR	87½	−1½
£30½	£10½	Motorola	£21	−£2½	41¾	38½	Perkin Elmer	41	−¼
300	208	Muirhead	280	+8	48½	38	Rockwell Inter	40½	+3½
£115	£00	NCR 4% 93/98	£87	−£3	80¾	42¾	Schlumberger	85	+2½
£138	£90	Perkin Elmer 4%	£132	−£3	52½	32¾	Sperry Rand	48½	−1¼
020	465	Philips Lamp	480	−3	40¾	13½	Storage Tech	10½	−¼
127	101	Plessey	108	−4	34¾	10¾	Tandy	30	−1¼
284	108½	Racal Electronics	190	−3	82½	32½	Tektronix	87¾	−2½
114	67	Rediffusion	72	—	99¾	01¾	Texas Instruments	84½	−1½
£24¾	£17½	Rockwell	£21½	+£¼	42¾	20¾	TRW	40	+1½
£00¼	£34½	Schlumberger	£40½	−£1¼	2	4	Wyly	5½	−¼
£30½	£30¼	Sperry Rand	£21¼	−£¼	08¾	02¾	Xerox	66½	−2¾
£27¾	£18¾	TRW	£17½	−£¾					
£44½	£28½	Xerox	£28¾	−£1¼					

The table shows the closing prices in London and New York at the end of last week. The share index is based on the prices of the UK companies in the table.



SEL reports fall in profits

SYSTEMS Engineering Laboratories of Fort Lauderdale, Florida, the firm that builds 32-bit computers for scientific and engineering applications, has announced a turnover of $17,745,000 for the first 13 weeks ended September 28 of its 1980 fiscal year.

Turnover for the same period in the previous financial year was $14,654,000. Net profits fell from $972,000 to $853,000 but the 1979 figure included an extraordinary item, a $272,000 tax loss carry forward.

Contact Steve Bass

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Tender forms are available from:
Hampshire Constabulary Headquarters, Support Services, West Hill, Winchester, and are to be returned by the 1st February 1980, to the County Secretary's Department, Hampshire County Council, The Castle, Winchester.

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County Supplies Officer, 2 Trusham Road, Marsh Barton, Exeter EX2 8RB. (Phone Exeter 77977, ext. 3407.)

PRODUCT NOTES

UK enters race for micro intercoms

AN INTERCOM system for up to 200 devices and with microprocessor controlled facilities is being introduced by Contacta Communication Systems. It is claiming this to be the first UK designed and manufactured system with micro control.

Called Inex and built around an Intel 8035 chip, it was designed and is being made by Contacta's Nottingham-based associate, Intercom. Contacta said it hoped that the system would break what it sees as the Scandinavian grip on the UK's internal communications market.

The distinction between direct speech and ordinary telephone PAX exchanges had been eliminated, claimed Contacta, as Inex allowed a mixture of direct speech and telephone style instruments.

System features included:

A. Electronically operated duplex voice switching on the direct speech stations and normal non-switched duplex on telephone instruments and between telephones and direct speech units;

B. Automatic call back to an engaged extension with a first come first served queueing facility but with a waiting caller able to make other calls in the meantime;

C. Call transfer that enables calls to follow one around the premises;

D. Automatic transfer of calls to a secretary's instrument;

E. Priority facility allowing chosen extensions to interrupt other calls;

F. Manual override that allows a caller's voice to be heard before any move is made to answer the call;

G. Privacy keys that prevent callers gaining automatic connection;

H. More effective overriding of background noise; and,

I. Push button dialling with single digit access for popular numbers.

These features were controlled by the chip and the whole exchange was housed on push-in circuit boards, said Contacta.

The exchange had an eight bit chip supervising its own operations, a basic program of 500 8-bit words for the keyboard programmable facilities and a range of call tones and patterns for the various facilities.

The 100 line version is available ex-stock from Contacta while the 200 line version is expected in April.

Contacta Communication Systems Ltd (CW), 32 Pope Road, Bromley, Kent. Tel: 01-464 7214.

Matrix printer

A MATRIX printer, called Paper Tiger, that costs £585 is available from Teleprinter Equipment. It weighs 20 lbs.

Features include automatic ribbon re-inking; software selectable character sizes; multiple line buffer; forms length control; parallel and serial interfaces; stepper motor driven tractor feed; both 80 and 132 column format; and printing at speeds up to 164 cps with a throughput up to 79 cps.

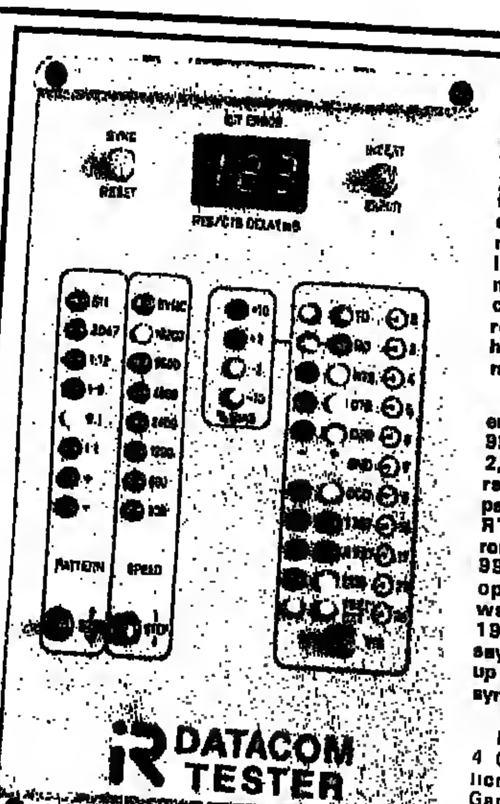
Teleprinter Equipment Ltd (CW), 70-82 Akeman Street, Tring, HP23 6AJ. Tel: 0442-82 4011.

In colour too!

DATA EFFICIENCY now offers its range of Datacabinets in a choice of colours at no extra cost.

Available as standard in autumn brown, alternatives include IBM blue, light straw and dark grey, ICL tango and Argentine grey and Honeywell black, white and blue.

Data Efficiency Ltd (CW), Maxted Road, Maylands Avenue, Hemel Hempstead, HP2 7LE. Tel: 0442 63561.



THE IR-Datacom tester is a low cost portable data test set that was intended for computer room and field use. All the diagnostics necessary to isolate faults to modems, lines, computer and remote terminals had been incorporated, said Interep.

It features a bit error count of up to 999 using 511 and 2,047 bit pseudo-random test patterns, measured RTS/CTS turnround delay up to 999 milliseconds, operates at between 300 and 19,200 bps asynchronous and up to 100,000 bps synchronous.

Interep SA (CW), 4 Cours des Bastions, CH-1205, Geneva, Switzerland. Tel: 010-4122) 209349.

Reverse channel on coupler

ELECTRO Medical Engineering has released its Sendata 1080 1,200 bps acoustic coupler with 75 bits per second reverse channel. The Sendata 1080 was interface switchable from 1,200 bps transmit / 75 bps receive to 1,200 bps receive / 75 bps transmit. Alternatively, it was also available in an "A" or "B" version as 1,200 bps transmit only / 75 bps receive only and 1,200 bps receive only/75 bps transmit only respectively.

The 1080 interface was compatible with CCITT V24 and EIA RS 232C standards as well as with Telecom 600/1,200 baud asynchronous modems.

Electromed said that it has already received orders from the UK, Sweden, Finland, Italy, Denmark, Switzerland, Belgium and Spain.

Electro Medical Engineering Pty Ltd (CW), 89 Sutherland Road, Armdale, 3134, Victoria, Australia. Tel: (010-613) 509 5844.

Signal conditioning kit

A LEAFLET describing its range of signal conditioning equipment is available from SE Labs. This is the Mini System which provides a range of versatile six channel units (SE 990 Series) at low cost.

The basic units of the series are described and a specification of each model is included. It covers a six channel galvanometer drive amplifier and attenuator unit, a six channel preamplifier and/or DC bridge supply unit and a six channel carrier amplifier and AC bridge supply unit.

SE Labs (EMI) Ltd (CW), Spur Road, Feltham, Middlesex, TW14 0TD. Tel: 01-890 1477.

Multiple deleaver

SOME users find floor area is less of a problem than desk top space. Recognising this, Wilkes-Multimatic has introduced a floor standing version of its Mini 2 multiple stationery deleaver which was launched earlier this year.

Offering the same operating speed as the desk top model — 200 feet per minute — the machine will handle two part, one time carbon or multi-sets and will also take carbonless paper.

Adjustable paper trays can be mounted either at just below desk level or at floor level. Priced at £490 with stand, Mini 2 comes with a six month guarantee and a maintenance contract.

Wilkes-Multimatic Ltd (CW), Parkfield Road, Wolverhampton WV4 6EL. Tel: 0902 49434.

Booklet

A BOOKLET containing several technical drawings and design diagrams of the intercar self powered rail conveyor system has been produced by conveyor specialists D. D. Lamson of Gosport.

It is available free on request and the 24 page booklet gives details of how the system can be installed and used in most kinds of building.

D. D. Lamson Ltd (CW), Harbour Road, Gosport, Hants. Tel: 07017 87311.

Video terminal

WILKES COMPUTING is now marketing the 80/1 plug to plug compatible video terminal from Datamedia. The 80/1 is an alternative to the Digital Equipment VT 100 and offers full VT 100 features, detachable keyboard, printer port and video option. It costs £1,283.

Wilkes Computing Ltd (CW), 72 Prince Street, Bristol, BS1 3HU. Tel: 0272 290651.

CHESSLAB

by Tim Niblett

Computers can't win at chess—or can they?

International Master Bill Hartston claimed recently that the way computer chess programs work at present means they will never consistently beat members of the chess élite. In this Chesslab, TIM NIBLETT, a research student in Professor Donald Michie's Machine Intelligence Research Unit at Edinburgh University, examines Hartston's claims and poses a contrary hypothesis.

THE provocative title of a talk given at Harwell by Bill Hartston was "Why computers can't play chess". He was certainly well qualified to talk on this subject since he is an International Master, was British champion in 1973 and 1975, and has also done research in computer chess at Essex University. Any criticism he might make clearly deserves our attention.

To add spice to the occasion John Birmingham and Peter Kent, the creators of Master, the current European computer chess champions, were present to defend the honour of their protégé.

Hartston did not in fact say that computers can't play chess — that would be foolhardy since Master can beat over 99% of chess players. He claimed that the way chess programs work at the moment means they will never consistently beat him, or other members of the chess élite.

This may at first seem surprising given the improvement we have seen in the playing strength of programs in the past five years. Programs such as Master and Chess 4.7 can now play at levels approaching that

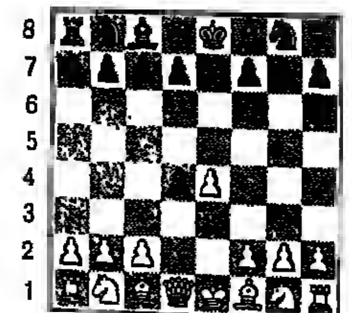


Figure 2: White to play.

of human chess masters. Indeed, in lightning chess where both sides have five minutes to make all their moves, the programs often beat the masters.

His is a reasonable position, however, indeed one that has been adopted by many people over the past 20 years. And he gave several cogent reasons for his belief.

All major computer chess programs (including Chess Challenger and its ilk) use an approach first described by Shannon and Turing in the 1940s. One can think of this approach as having two major components, search and evaluation.

The search component searches the same tree to a fixed depth or until some "quiescence" measure is satisfied, and each terminal or leaf node of this tree is given an evaluation by the evaluator. This is a measure of how good or bad the position is for the machine. Given the value of these positions the move selected at the top node is the one which maximises the least possible value at the bottom of the tree whatever the opponent chooses (the so-called minimax value).

This approach has much to recommend it. Theoretically it can always find the best move, either by searching exhaustively for checkmate, or by having a perfect evaluation function. In practice things are very different. An ultra-fast computer that can search one node in a micro micro second and was set going when the Earth was born, would now be at about move 10. It would not be much nearer a solution when the Earth dies. Conversely, no-one knows of a perfect evaluation function, or even a very good one. There are many individual positions about which grandmasters disagree, and to provide a general function is impossible. As an example, try Figure 1. Can you see why B×P wins in one case and fails in the other from a static analysis of the position?

All chess programs must compromise in this situation — they use a fairly naive evaluation function and back this up with a greater or smaller amount of search, hoping that increasing the depth of search will increase the overall accuracy of evaluation. Hartston believes that this compromise will ultimately be unable to achieve the heights of the very best human players. The major problem is that increased speed of search has an exponentially falling payoff in terms of the depth of search. With a branching factor of 30, as is usual in chess, a speed increase of a millionfold only allows one to search 4 half-

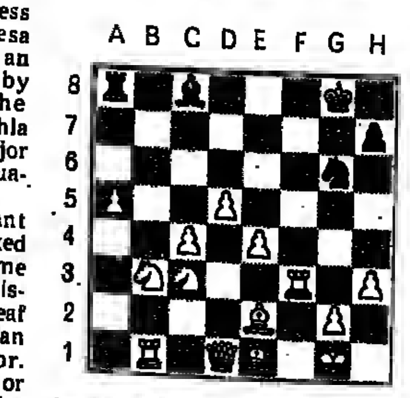


Figure 3: Black to play.

moves (moves by player only) deeper with this naive algorithm. The improvements of the past 15 years, relying on clever search techniques and the investigation of only certain "best" moves, can only have a palliative effect.

Hartston singled out two main areas for criticism, areas in which he thinks the playing paradigm given above must always fail: the search for quiescent positions and positional sense.

If one has a sequence of moves which wins a pawn or other piece, to evaluate this correctly one has to be sure that the opponent cannot win back this ground. In Figure 2, for example, Black has just won a pawn; to stop the search here and evaluate the position as better for Black would be foolish, as White can win it back. Programs usually investigate capture

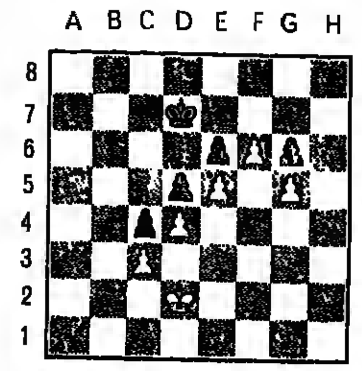


Figure 4: White to play and win.

sequences just to avoid this problem.

In general it is very hard to determine whether a position is quiescent or "dead". Early programs were very bad at this. The more recent ones exhibit it to a lesser degree, but Hartston believes that it is unavoidable within the Turing-Shannon approach.

Now consider the position of Figure 3.

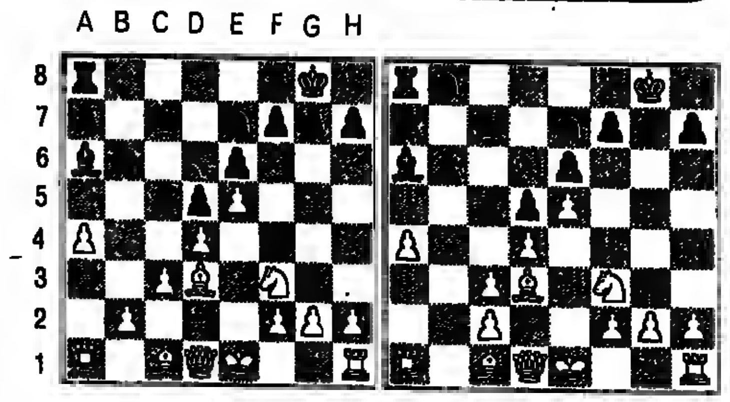
This is taken from a game between Korchnoi and Fischer. In move 24 Fischer played Nh8. The idea is to play the knight to g5 via f7 where it can be sacrificed on h3 to attack the White king. This was a game of 5-minute chess where each side has 5 minutes for the whole game, and Fischer must have found the move in a few seconds.

The point is that such a move cannot easily be found by the brute force method given above. Programs which don't look at all moves may well not even see it, while even a complete search would take 7 half-moves to see NxP (h3) and is unlikely to find it attractive. It is very much a matter of luck as to whether this move is found. The program lacks a sense of direction.

Hartston claims that human chessmasters playing at their best do not make simple mistakes, such as losing material, while being able to plan ahead a long way as in this example. A program would get outplayed over a long period of time, simply because its lookahead is not deep enough to "see" strategic ideas. Perhaps an even clearer example is given in Figure 4.

A program with a simple evaluation function giving precedence to having the king in the centre will move the White king aimlessly, keeping it behind the White pawns. It would take a deep search to see that White can invade on the queen side and win the pawn on e6. This problem of a lack of direction is usually more evident in endgames.

Hartston's talk was not entirely dispiriting for Master's developers, however. His work at Essex produced a positional evaluation function far more



A white to play B

Figure 1: BXP+ wins in B, loses in A.

sophisticated than those mentioned above. It uses a vector of 9 or more components to describe factors such as control of the centre, the wings, the white and black squares and so on. Using this, John Birmingham and Peter Kent hope to give Master some form of positional awareness and sense of direction. They even consider going as far as analysing master games, seeing the type of changes induced in the positional vector and using this to enable Master to play in the style of a Fischer or Karpov. I am keenly interested in the results. Maybe Hartston himself will find his master?

I would like to leave you with a hypothesis contrary to that of Bill Hartston. It has been observed, and Professor Donald Michie has reported in a previous Chesslab, that chessmasters even when playing such endgames as king and queen vs king and rook where the side with the queen has a known win, and which humans can win easily with the queen, find it very hard to play against a machine defence — indeed, two chessmasters were unable to demonstrate a win with the queen against such a program recently.

We thus have a fascinating situation in which two people playing against each other think they are playing perfectly, and find the ending quite tractable — yet they are wrong.

Perhaps a similar situation occurs in grandmaster chess. The two players deal with sophisticated long-term plans and consider themselves to be playing perfectly (or at least very well). I would like to suggest that they may be wrong, and as in the king+queen vs king +rook case they are, unknown to themselves, choosing moves which make it easy for each other as humans to play (a conspiracy theory of chess). The machine may indeed turn out to "play chess", in an unexpected way.

CONFERENCES

THE ninth International seminar on banks and computers will be held from April 23-25 at the Hilton-Suffren Hotel, Paris. Organised by Insig, it will cover matters which will alter the work of banks in the next few years, including new products and services, advanced applications of automation and trends in the social, economical and political environment. An exhibition of specialised DP equipment will take place at the same time in the Paris Hilton-Suffren Hotel. Details from Insig, Institute de Recherche Interbancaire, 5 rue Quentin-Bauchart, 75008 Paris.

A symposium on medical computing, GP-Info 80, is to be held at the Royal College of General Practitioners from March 10-15. It aims to bring together general practitioners involved in GP information systems and the experts in computing relevant to the tasks in hand. Inquiries to the Course Organiser, GP Info 80 Dr Alastair Malcolm, the Royal College of General Practitioners, 14 Princes Gate, London SW7.

Over 400 companies are to take part in the International Fire Security and Safety exhibition and conference, IFSSEC 80, to be held at Olympia, London, from April 21-25. The event is devoted to all aspects of fire protection, security and occupational safety and health. The safety section will now be incorporated into the first National Health and Safety conference to be held at the nearby Royal Garden Hotel, and is jointly sponsored by the Health and Safety Executive, British Safety Council, Royal Society for the Prevention of Accidents and the Institution of Industrial Safety Officers. Full details of IFSSEC are available from the organisers, Victor Green Publications, 106 Hampstead Road, London NW1. Tel: 01-388 7661.

The Information technology European conference and exhibition IT'80 is to take place in Monte Carlo from November 10-14, 1980. This is to be the first in a series of international events concerned with the whole range of information transfer technologies. The exhibition is organised by Executive Conference Organisers, and the conference by ISL. Details from Executive Conference Organisers, Acorn Studios, Barnes, London, SW13. Tel: 01-748 0287. Conference information is available from ISL, Regal House, Lower Road, Chorleywood, Rickmansworth, Herts. Tel: 09278 4244.

THE name of Ada is now part of computer jargon, having been adopted for a real time language. It has been suggested that the name might have begun as a joke between Lord Byron and his wife: it was the second name of their only daughter Augusta Ada Byron (1815-1852). DONALD DAVIES charts the stormy life of the world's first programmer.

The stormy life of the world's first programmer

ADA's father was the great Lord Byron, whose marriage to Lady Byron broke up quickly so that when Ada was born on December 10, 1815, he saw little of the baby and had no more contact with Lady Byron and her daughter.

The story of Ada's life is dominated by the personality of Lady Byron. It is understandable that Byron, as a great romantic figure, should leave bitter thoughts with his estranged wife. For the rest of her life Lady Byron sought to justify her own conduct, a task which she pursued with obsession, as well as giving lifetime employment to several lawyers.

One of her unfounded fears was that Byron would somehow take away his daughter. With considerable legal skill, Ada was made a Ward in Chancery without Byron's knowledge.

Portraits show Ada as a beautiful little girl. She was intelligent and responded well to

by DONALD DAVIES

the intensive education which Lady Byron planned.

Lady Byron had a great interest in educational methods. At the age of five Ada was being taught arithmetic, geometry, spelling, reading, music, geography and French. She was already said to be skilful in arithmetic. Her regime was strict, but Ada seems generally to have liked her lessons.

In February, 1824, when Ada was eight, Lord Byron died. He was trying with his last breath to say something relating to Ada. His daughter, it was written, "shed large tears."

From the age of 14, Ada seems to have been stricken with a disease which made it difficult for her to walk. For a while she used crutches and at the time of her presentation at Court in May 1833, aged 17, she was still finding it difficult to stand for long.

Those at the presentation to King William IV and Queen Adelaide included Talleyrand, the Duke of Wellington and Lord Melbourne, who was Home Secretary, soon to be Prime Minister, and who was Lady Byron's cousin.

A few weeks later, she went to a party which pleased her more because of the "scientific people" there. This was her first meeting with Charles Babbage, who at that time was beginning to have problems with the funding by the Treasury for building his Difference Engine. Ada's friendship with Babbage continued throughout her life.

In the following year, Ada was attending lectures on the Difference Engine given by Dr ...ardner.

In July 1835 she was married to Lord King. Probably, Ada's meeting with her future husband was brought about by Mrs Somerville, a lady who was a celebrity in the scientific world and had a portrait bust made of her to stand in the Great Hall of the Royal Society. Despite this, Mrs Somerville could not become a Fellow or even enter the ...ce to see the sculpture.

The King family had three children quite soon, a boy in May ...36 called Byron, a girl called ...ne Isabella or Annabella after ...r grandmother Lady Byron

and born in September, 1837, and another boy, called Ralph, born in July 1839. Ralph was the name of Lady Byron's father.

In June, 1837, Victoria came to the throne and, in her 1838 Coronation Honours, Lord King became the Earl of Lovelace and his elder son (aged 2) became Viscount Ockham, thus avoiding some possible confusion about his Christian name Byron. It is probable that this honour for Lord King was due to Lady Byron's cousin, Lord Melbourne. Two years later, Lord Melbourne made him Lord Lieutenant of Surrey and provided him with a life ticket to drive through Constitution Hill, a considerable privilege.

Charles Babbage moved on from the Difference Engine to the much grander concept of the Analytical Engine, but he never seems to have written any single coherent account of this machine or of its programming. The best account we have comes

by a roundabout route, and its completeness is largely due to Ada herself.

Charles Babbage had given some lectures in Turin and the young Italian military engineer, L. F. Menabrea, who heard them, wrote an account of the machine in French which was published in October, 1842. Lady Lovelace told Babbage that she had translated this paper into English and he asked her at once why she had not written an original paper. This had not occurred to her, but Babbage persuaded her to add many detailed notes to Menabrea's paper including some examples of programs which she discussed with Babbage but which, with one exception, were her own. She had also found that Babbage's suggestion for calculating Bernoulli numbers had "a grave mistake", the first reported example of a program bug.

When Ada had finished with these notes, they were three times as long as the original memoir and Babbage was evidently delighted with the result, which he regarded as the first full demonstration of the power of the Analytical Engine.

Ada's notes on Menabrea's paper are possibly the only direct evidence of her mathematical ability. They are clear, well-written and intelligent though, by modern standards, they seem over-long. Her correspondence with Babbage shows her charm and high regard for him. He certainly valued her ideas and found her one of the few people who really understood what the Analytical Engine was about. But his attempts to improve the style of her notes drew a strong rebuke from Ada.

Both worked hard to polish and refine the notes, but I think Babbage would have been careful not to alter them again without good reasons. He gave Ada all the credit for them except for the basic method used to calculate Bernoulli numbers.

In the notes she introduces an index notation to remove some ambiguities. She discusses the many different sequences in which a set of operations could be carried out, and suggests that

LADY LOVELACE . . . one of the few who really understood Charles Babbage's Analytical Engine.

the right choice will shorten the total time of calculation. Tactfully, she corrects Menabrea's formulas and then lays out the operation of his programs in tables to make the process entirely clear.

Her final example, the Bernoulli numbers requires, as she says, "cycles of cycles" and the paper ends with a large table tracing the history of the 24 variables needed to compute up to B_7. She wrote the table in pencil and Lord Lovelace inked it in. Then they found a major error of method and had to do it again.

The experience of working through these examples was important. Menabrea felt that the intellectual work would end with the mathematical formulae. What we now call programming he supposed was a job for "workmen".

Ada was clearly not doing the job of "workmen". She seems to have understood the importance

of a good notation and remarked that mathematical notation was insufficient. Her notes have a surprisingly "modern" feeling when compared to anything Menabrea wrote, and perhaps Babbage also. But nothing else of her scientific work or ideas remains, to my knowledge.

This close collaboration between Babbage and the young married lady must have been unusual. In the manner of the day, they corresponded frequently, sometimes daily or even more than once a day. Babbage visited the Lovelaces by taking the train to Weybridge, a newly opened station.

Ada was acquainted also with Faraday and with Charles Wheatstone who was then developing the electric telegraph with William Cooke.

Ada was noted for her outspokenness. She wrote that "Faraday expresses himself in absolute amazement at what he (I think most happily and

beautifully) designates the elasticity of my intellect". She says that he "feels himself a mere tortoise in comparison". She was not inclined to exaggerate and so Faraday probably did pay her this handsome compliment.

Towards the end of 1850, the Lovelaces visited friends and relatives in the North of England. Among other places they visited Newstead Abbey which earlier belonged to the Byron family but had been sold to a Col Wildman. Nearby was Hucknall, where Ada's father was buried.

This visit was to have a profound effect on Ada. At first she was morose and Col Wildman could get almost no words from her. She wrote to her mother that the visit to Newstead Abbey had made her strangely depressed. What seems to have happened was that Col Wildman, who knew Lord Byron in his youth had, in his conversation and by the way he

maintained the house as a tribute to the Byron family, begun to challenge Ada's lifelong indoctrination concerning the sins of her father.

The last two years of Ada's life form a story of illness and disgrace. The illness was cancer, which showed its first signs in late 1850. The disgrace came from her addiction to gambling on horses.

There is no certain connection between this gambling and her friendship with Babbage, though Babbage tried to help her later when she was in trouble. Even the idea that Ada had a "system" using mathematics to win on the horses is not really substantiated by the evidence.

This may have been the beginning of her downfall but in the end she was simply heavily in debt and trying to retrieve her situation with more betting. She was mixed up with unsavoury characters, offering tips and trying to extract money that she owed them. Among these appears John Crosse, the son of a former scientific friend and of whom there was some hint of other scandals because he had concealed from the Lovelace family that he was a married man.

Ada's ill-fortune came to a head on Derby Day, 1851. The horse that won and sealed her fate was called Teddington. She owed £3,200, a very large sum.

Settling the debts was difficult because untrustworthy people claimed to have laid out large sums on Ada Lovelace's account. It was impossible to keep the matter quiet so, as well as writing to Lady Byron, Lord Lovelace travelled to Leamington to see her. He told her about Ada's increasing signs of illness, but evidently the news of Ada's gambling affected Lady Byron more.

Until this time, Lord Lovelace had been on good terms with Lady Byron, though somewhat dominated by her. Now, Lady Byron blamed him for everything that had happened and seemed to transfer to him all the feelings she had built up for her late husband with Ada in the role of the wronged wife. The strength of these feelings were such that she almost ignored the news of Ada's illness and it was not until Ada was very ill indeed that her mother came to see her again.

So the end of Ada's life was tragic. She had pawned the family jewels for £800 to try and pay some remaining debts and Lady Byron sent her lawyer to redeem the jewels and return them. On her death-bed, she passed the jewels to John Crosse who pawned them again and Lady Byron redeemed them again but kept them herself for safety.

She died in December, 1852, aged 36, the same age as Byron at his death. In accordance with her wishes she was interred in the Byron family vault in the village church of Hucknall Torkard. Evidently Lovelace had contrived to put her coffin close to that of Byron as she wanted, because this is how they were found when the vault was opened in 1938.

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COMPUTER WEEKLY International
NUMBER 99
THURSDAY, JANUARY 10, 1980

INTERNATIONAL BRIEFING

Supercomputer for China

CHINA is expected to have soon a supercomputer with a speed of 20 million instructions per second under development. It will use high speed emitter-coupled logic circuits which have been developed at the Shanghai Number Seven radio plant especially for the computer. The new machine will have 10 times the performance of China's largest computer currently known, the Model 013.

Despite this, China is aware that shortages of raw materials and production equipment are hampering its efforts to develop LSI semiconductor technology.

Secrets trial

A 29-YEAR-OLD man was tried in Boston on Monday accused of attempting to sell confidential information about IBM to Control Data last year. David Grigalunas is said to have stolen the IBM information when he was an employee of Charles River Associates, a Boston consultancy. He was arrested when CDC informed IBM about the contact and the police were brought in. No verdict had been returned when Computer Weekly went to Press.

S African order

SOUTH AFRICA'S Iron and Steel Corporation, Iscor, has ordered two dual Burroughs B7821 mainframes to replace four CDC 3000 series machines. They are to be installed in Vanderbijlpark and Newcastle. Control Data has retained the Iscor business at its Pretoria head office and works with unspecified equipment. ICL, IBM, Siemens and Univac all bid.

Director named

MAGNUSON SYSTEMS, which sells the M80 family of IBM compatible processors, has created a new post of manufacturing director. He is Douglas Larson, who held a similar position within National Semiconductor's Advanced System operation. Larson will head Magnuson's expanded production activities at a new 75,000 square foot plant at San Jose, California.

ITT launch

A NEW data entry system compatible with IBM's 3741 key to floppy disc system has been launched by ITT data systems in France. Called the 3471 it comes in four models, two of which are direct replacements for the 3741 while the other three are programmable in Basic.

Woolworth order

IBM has won a $25 million order for 8,000 of its 3680 point-of-sale terminals from Woolworths in the US. One deciding factor in awarding the contract is thought to have been a "volume procurement discount" of between 4% and 8% offered to Woolworths. The only other deal of this kind offered by IBM was with the Series 1 system.

CDC sets up centres for small businesses

WHILE politicians and sociologists talk tirelessly about the need to help small businesses and to revitalise inner-city areas, Control Data is actually doing something in the US to alleviate the problem of both.

Starting in its home city of St Paul, the company is establishing a string of business centres across the country which offer to small business tenants a share in high technology services which they would not otherwise be able to afford.

Included is the rent on a building receptionist, use of conference rooms and access to a technical library with over 1,500 volumes and the major periodicals. In addition terminal access to CDC's Cybernet, programming services, use of a Xerox collating copier and telephone answering service are all charged on a usage basis. Business advisory services are also offered.

Control Data is not establishing the centres out of altruism: it expects them to pay and has set a target of profitability after three years.

The St Paul centre was opened last May and others are being established in the run-down city centres of St Paul's twin city, Minneapolis, in Toledo and in Philadelphia.

Control Data hopes to have 15 in operation within five years.

Logica in $8 million Nato study contract

LOGICA is part of an international consortium which has just been awarded a multi-million dollar study contract to define the overall architecture of a massive command and control network called Allied Command Europe — Command and Control Information System, ACE-CCIS. The consortium is headed by the Munich based consultancy Electronik System, and the other four members include IBM Germany.

Nato's decision to award the study contract was made more than 18 months ago (CW, May 18, 1978). It will be carried out in Belgium over a two-year period and is worth nearly $8 million to the winning consortium. Logica will get 18% of the total.

Consortia that bid unsuccessfully included one led by the defence systems side of Plessey and which included Scicon. The other consortium in the final short-list of two was headed by TRW of the US and included ICL's software company Dataskil. Both consortia were equally good technically but the ESG group got the job because its bid was cheaper.

The proposed command and control network will interface with the existing and future networks operated by the armed forces of the individual Nato member countries including the UK's Opcon.

The study will include establishing the requirements of potential users of the network and is the first stage of a project which could take up to 15 years to complete. Substantial contracts for implementation work will be awarded in the future and like the study contract will be open to tender.

Contracts still have to be placed for the message switching systems, Scars and Comps, that form part of Nato's communications plans along with the command and control network.

The other three members of the ESG consortium are the US firm BDM Corp of McLean Virginia, a third German firm, GEI of Aachen, and Sobemap of Belgium, which is part of the Metra computer services company. Sobemap worked with Logica on the Metensal project at Darmstadt. BDM is active in the defence field in the US.

Another US owned firm, PRC International, is currently working on the other big current computer-related Nato project, the Shape Transition Programme. This involves a Honeywell 6000 series machine at Shape headquarters at Mons in Belgium which has been upgraded to look like a Level 66. The project includes Cobol conversion from an IBM 360.

The study into the architecture of ACE-CCIS will probably include a determination of the role of the Mons computer and also of the Nato Integrated Communications System.

Computer Automation's new chief

COMPUTER AUTOMATION has a new chairman. He is George Pratt, a financial consultant who has been a director for about eight years.

Pratt replaces Robert Rawlins who retires after 10 years as chairman. David Methven continues as president and chief executive officer of the company.

Meanwhile, Computer Automation, which is recovering from some serious financial problems, has signed a new credit agreement with its bankers that extends to mid-1981. The unsecured credit line started at $15 million at the end of 1979 and will decline in stages to $12 million by May 31, 1981.

Computer Automation's bankers are Citibank and Security Pacific National Bank.

Arabic Braille systems for Saudi Arabia

A COMMISSION to design a computer system for producing Arabic Braille to benefit the blind in Saudi Arabia has been granted to Warwick University's Research Unit for the Blind.

When in use at a major Arabian publishing house, the system will allow keyboarders with no knowledge of Braille to input text on VDUs for automatic conversion to embossed metal plates, from which Braille books are made.

Contracted Arabic Braille contains a large number of complex abbreviations to make reading faster, and hitherto the conversion from ordinary Arabic has required a skilled person.

The hardware for the system has not yet been chosen, but several manufacturers make suitable Arabic terminals.

Warwick's unit for the blind is best known for the service it provides to blind customers of Lloyds Bank, embossing statements for them automatically from magnetic tapes provided by the bank. About 7,000 such statements are produced a year, giving blind people increased privacy as previously they had to ask friends or neighbours to read their statements to them.

French mini firms claim a share of State aid

MEMBERS of the French Club de la Peri-Informatique, to which most of France's small systems and peripherals companies belong, are clamouring for a place in the sun in the government's next five-year plan for the support of the computer industry.

The French Industry Minister plans to spend 2,000 million francs (about £220 million) over the next five years on computer industry support.

In the last plan, club members say that while CII-Honeywell Bull got support of some 3,000 million francs, the remainder of the French industry only got about 220 million, half of it in loans.

Observers believe that the French government may well emphasise the small systems sector in its next plan, partly because of the EEC regulations against single tender procurement which come into force at the end of the year.

CII-HB has been active in pursuing small systems business, using the Honeywell Level 6 minicomputer, called Mini 6 in France, as the spearhead, but expanding its interests in terminals, entering the banking systems market, and acquiring a controlling interest in microcomputer specialist R2E. In addition it is actively studying the office automation market.

Thus a plan which emphasised support for the small systems and peripherals sector would enable the government to continue to aid CII-HB after the EEC directive comes into force.

Two-year field trial planned for Canada's Telidon viewdata system

CANADA has added another field trial to plans for the development of its Telidon viewdata system. The latest trial, called Project Mercury, is due to start in the coming autumn in Saint John, New Brunswick, on the east coast, and run for up to two years.

It is the smallest trial announced so far and involves 20 terminals to be rotated around 75 homes and businesses, linked by dedicated lines to a DEC PDP-11 at the New Brunswick Telephone Company. The trial will also include meter reading, fire and burglar alarms, medical alert, energy management and automatic telephone testing systems.

Only one of the six trials so far announced includes broadcast teletext. That is the TV Ontario trial in Toronto involving 55 terminals. It was due to start on January 1, but the terminals are all in the field and the first broadcast went out last week.

The biggest Telidon trial is the Vista project planned by the Bell Canada telephone company for Toronto and Montreal early next year starting with 500 terminals and 50,000 pages and growing quickly to 1,000 terminals and 100,000 pages.

John Smirle, of the government Department of Communications, said at least three more trials would be announced by next summer. Information providers were being recruited now, both local and national, and information of national interest would be syndicated for sale through every service. One new company, Infomart, had already been formed for this purpose by two newspaper companies, Torstar and Southam.

● Turn to page 23

SPOTLIGHT ON ITALY—1

Italy is a land of small businesses so it is not surprising that the country's top two computer companies are primarily in small business systems. In this two-page spotlight on Italy ANTHEA BALLAM looks first at Olivetti's automated office philosophy and then considers the fortunes of Italy's second computer firm, Mael.

And in the beginning was Olivetti's word

THE automated office of the future is a distant dream despite the remarkable technological advances made over the past decade. Advances continue to be made in the fields of small business systems, word processing, typewriter and calculator technology, but such developments are polarised. Only when these technologies integrate will the truly automated office become a practical reality.

Two organisations are perfectly positioned to move into the integrated automated office market IBM and Olivetti. These two most conspicuously supply the multifarious equipment necessary for standard office routines.

Olivetti is deeply concerned with the philosophy behind the automated office, as Ettore Morezzi, chief of the office products group, explained.

He considers, quite reasonably, that the automated office begins with the word, and the word is the typewriter. It may be no coincidence that this year, the most financially healthy for the company for many moons, it has staged its most aggressive marketing tour de force yet, in launching its two new generation electronic typewriters the ET 221 and ET 201.

Morezzi considers that these machines will spearhead a change in the office scenario that will begin with something as apparently insignificant as the typewriter. He agreed that in the future the automated office would involve the centralisation of a number of office procedures, and although he would not elaborate in detail, implied that there will be peripherals to come, and further capabilities envisaged for the ET 221 and 201.

Franco Agoatinucci, chief of Olivetti's distributed processing, explained the philosophy behind future systems development. "The possibilities lie in the firmware of the machine and we will discover what will be necessary at the request of the market.

"If there is a demand for an accounting module we will provide that facility, as in the case of those that may demand systematic invoice production."

He was enthusiastic to explain that the capabilities of such devices were considerable, but must be dictated by market demand. "It is technologically already feasible that such a machine can be plugged into a minicomputer system, but plans for building such systems with so heavy a degree of integration must be seen as something for the future. We have the technology."

Meanwhile the ET 221 and ET 201 remain good, efficient stand-alone electronic typewriters with a 1K memory and a number of useful facilities that make the typist's life a good deal easier and more fun. The 221, for example, provides a 20 character guide and entry display which visually exhibits the last 15 characters typed on to the keyboard and allows for immediate correction of the text prior to printing. Both units incorporate a daisy-wheel printing device and both permit basic information to be recalled from memory for regularly used phrases, letter terminations and dates.

Instructions are also provided for automatic positioning of paper and automatic indications are given for a page end. The electronic buffered keyboard provides a somewhat futuristic capability for internationally minded secretaries in that all the variations for national accents and symbols can be recalled at will.

International keyboards apart, Olivetti was quite bald in stating repeatedly at its US Press launch of these products that they were "designed exclusively for the American market". Possibly the company sought recognition of the products in the US as a key to their European acceptance, or maybe they simply wished that the factories producing the machines both in Harrisburg (Pennsylvania) and Ivrea would be kept fully occupied. Whatever the intention the ET 221 and 201 machines have proved successful.

Moving up the word processing ladder one step beyond the electronic typewriters, one encounters two somewhat more heavy duty systems, the TES 401 and the TES 501.

The Olivetti 501 has earned the distinction of being used both at the EEC headquarters in Brussels and also at the European Court of Justice in Luxembourg. It incorporates a number of familiar features in word processing units and appears to be a straightforward and easy to use system.

The TES 401 text editing system was launched at Hanover, and in its basic form is described as an electronic memory with a minidisc file memory. The sleek unit incorporates a RAM memory, with a capacity of 7,500 characters, while the minidisc file memory also holds 7,500 characters storage, which amounts to some four pages of text.

Plans are well underway to incorporate a communication facility into the unit. Exhibited at the Telecom 79 exhibition in Geneva, the communications capability would allow users with special terminals used in conjunction with the 401, to transmit and receive information by the standard Post Office telephone line, telegraph or telex network.

Morezzi was enthusiastic about the prospect of providing Olivetti's WP systems with electronic mail and communications capabilities. "Today office automation isn't looking for integrated systems performance so much as an increase in the communications capability of the typewriter ... we are also looking at teletext services which are an important development."

He added, "I visualise the automated office of the future evolving from several different points, within the office, and this evolution is not likely to come from customised design."

How did Olivetti respond to the challenge of providing equipment to meet a customer requirement? Here Agostinucci took up the story, citing the important order that Denmark's Sparekasserne (Savings Bank) had recently placed with the company. In this case the Italian company will be designing bank terminals specifically to meet customer requirements.

Another reason for the company's success in gaining what appears to be one of the largest DP requirements yet to emerge from Denmark was the promise of close co-operation between the technical experts at Ivrea (the company's headquarters and main manufacturing centre) and the banking and DP experts of Sparekasserne.

Commenting on this, the general manager of the Danish bank stated that, "Considering Olivetti's broad engagement in the whole field of office automation and word processing, we attach a great importance to this co-operation".

The Danish Savings Bank's chief was clearly not understating when he observed the diversity of Olivetti's involvement in automated office products. Within the typewriter and word processing range alone, electric models span from the Lexicon 00 series of machines (now upgraded to the 93, 93C and 94C dual and four pitch models) to the TES 401 and the new generation electronic machines. The automated products also include the sleek series of calculators, designated Logos.

Olivetti is also involved in the manufacture of plain paper copiers, and a recently released new model is capable of automatically reproducing images on both sides of the paper. Designated the Copia 2000, the machine is available in a number of configurations.

Within the DP field the company is heavily involved with the manufacture of factory and control systems, but a major percentage of its data processing activities is historically and inextricably tied to the commercial market that the company has served since 1911 when Camillo Olivetti designed his first typewriter.

Thus within the distributed data processing field, the company can be found to market products varying from the BCS 2000 small business computer through to its well established terminal and data entry units.

Yet when it comes to office automation in the true sense, and when one examines this concept with the office of the future in mind, one must begin with the "word". With its historical roots lodged firmly in the typewriter, Olivetti, like IBM, will be there with its multifarious solutions to office automation needs.

The Olivetti ET 221 electronic typewriter which provides a 20-character guide and entry display which visually exhibits the last 15 characters typed on to the keyboard and allows for immediate correction of the text prior to printing.

One of Olivetti's new generation electronic typewriters, the ET 201.

Mael doomed to stay in second place

SPOTLIGHT ON ITALY—2

UNTIL three years ago Mael, Italy's second computer company, seemed to be the only other runner in the two-horse national hardware race. Today, however, Italy's market has become measurably more competitive with six participants trailing after the unmatched front runner, Olivetti.

Even so, of all Italy's home-bred manufacturers — Italdata, Tesak, Elit-Micromegas, Saico and Omega Data — only Elit-Micromegas of Pisa looks sufficiently pioneering to represent a threat to Mael's No 2 position in the immediate future.

Mael's progress seems almost plodding and careful when viewed against the volatile commercial and political climate of Italy. The company was formed in 1970, under the title of Insel Industrial Sistemi Elettronici SpA and retained the name, officially, until last May. It was then that the organisation's directorate saw fit to change the company's name to make it correspond with that of its altogether better known product line, Mael.

At the start Insel was a quite different beast from the modern Mael. Initially it had been involved exclusively with the production of tailor-made computer systems for specialised industrial and technical applications. Later it moved into commercial systems. In 1970 as now, its manufacturing plant and headquarters were based at Carsoli in Abruzzo, east of Rome.

During the ensuing years, however, Mael changed its identity, and became thoroughly entrenched in the small business systems market — so much so that it has remained stoutly dedicated to this market sector ever since.

It neither markets its products to the end user, nor does it aspire to produce products in any market area other than the business system field. According to the company's vice-general manager, Dario Angelini, it has no plans to stray from this chosen path.

Thus Mael builds small and medium sized business systems (mostly operating in stand-alone mode), incorporates a good workable operating system, and hands the goods over to its dealer/distributors throughout Europe to handle the other software, bells and trimmings. Yet this restricted commercial policy has proved a highly successful formula for the company, and it has grown from strength to strength.

On its home ground, however, Mael does not appear to be as strong as might be expected. Tenders from companies or government departments that might favour an indigenous supplier tend to go in favour of Olivetti.

Nevertheless some pioneering work has emerged from its home, independent dealer/distributor Saga. (Sistemi Avanzati Gestiore Azendale).

Saga has offices throughout Italy and the surrounding islands, and operates under four different divisions.

Mael readily admits that the most important software development being carried out on its products at the moment comes from the Saga stable. Its other overseas dealer/agencies have, nevertheless, proved to be an enterprising band, and have made some effective inroads into certain market areas in Europe.

The company's German agency is an exceptional organisation in that, unlike the others, it functions as a direct associate of Mael's, and claims the highest sales and installation quota in Europe, even higher than that scored in Italy. Designated Mael Computer GmbH, the German agency boasts over 1,500 installations, and apart from a strong user base in general office system applications, has made a particularly powerful impact on the construction industry.

Another effective European agency for the company has been the UK dealer Computer Ancillaries of Egham. This company has chalked up an impressive user-base of about 600 installations, and through its countrywide dealer network has secured orders with a number of major corporations. The company's chairman, Ian Skinner is particularly enthusiastic about the Italian organisation's latest product, the Mael 5300, which was launched at Hanover this year and made its first UK appearance at the International Business Show.

"The Mael 5300", he explained, "is probably the most saleable product in the Mael line because it effectively brings the 5000 series down to a level comparable with the high end of the microcomputer market. This new model features in its basic form, a screen, 64K central processing unit, 2.7 megabytes of floppy disc storage and a 120 characters per second printer. Over here we will be selling it for £9,600."

For Dario Angelini the 5300 represents an important product. It slots neatly into the already established 5000 range of systems designed for multiprogramming and real time processing jobs involving the handling of sizeable data files. The mono-multiterminal 5300 extends the capabilities of the range, which have already proved satisfactory for such applications as sales ledger-type tasks, stock control and nominal ledger.

Mael is as careful in its design of systems as in its operational philosophy. Like the other units in the 5000 series the new 5300 uses a 16-bit parallel microprocessor, the reliable and well-established General Automation SPC 220, and this provides a 500 nanosecond cycle time. One of the most intriguing features of the new baby is the inclusion of the mega-floppy disc unit, which offers 2.7 megabytes of storage with a maximum online capacity of 5.4 megabytes.

Apart from providing a powerful storage capability, Mael claims that its 5300 system was one of the first in Europe to incorporate this powerful storage facility in a small business system.

The company has been able to include this sort of up-to-the-moment design detail by running a small office in the US with the sole purpose of monitoring the latest developments on the data processing front.

There are, to date, some 5,000 Mael systems operating in 16 different countries. Some of the systems can be found in quite unexpected situations, tucked well behind the Iron Curtain and also in some of the more distant regions of the Middle East. The robust design has helped them to prove quite functional in diverse climates.

National preferences for machine types has varied considerably from country to country. In the UK, for example, the system at the bottom end of the Mael range has hardly featured at all, whereas in Italy and Germany this diminutive device has proved much more successful, and was favoured in technical as well as commercial environments. This unit is called the Mael 1000.

The 1000 is ostensibly a stand-alone table top data preparation unit, which is easily programmed and can provide data on an IBM compatible floppy disc. It can deal with relatively simple calculation, statistical or table look-up tasks, and may also be linked to a number of peripheral devices, such as a matrix printer or magnetic tape transport.

The Mael 2000, by contrast, has proved as popular in the UK as it has in Italy and Germany. Computer Ancillaries featured the 2100 system conspicuously on its stand at the IBS. This self-contained small system is available with a range of software packages, and in this country may be acquired complete with printer, 32K CPU, screen and a megabyte of floppy disc storage at a cost of £8,450.

Thus Italy's second computer company can be seen to be offering an effective and low-cost solution to the business market. Yet by limiting itself in its products and marketing strategy it has clearly chosen a safe and wise path, so far. In 1977 it doubled its turnover on the previous year, and in the first six months of this year doubled the sales figures recorded for the whole of 1978.

But even if the company can stage this exceptional growth rate, it is still doomed to remain a four-stone weakling behind the might and power of Italy's volatile and inspired first computer company.

The Mael 5300, which was launched at Hanover last year. It is described as "probably the most saleable product in the Mael line because it effectively brings the 5000 series down to a level comparable with the high end of the microcomputer market."